THE OIL WEEKLY

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The Oil Man's Calendar

JUNE 24-26	National Oil Scouts Association, Dallas Texas.
20-26	Golden Celebration of Oil and Gas, Findlay, Ohio.
25-27	National Oil Scouts Association, Dallas, Texas.
JULY 12-13	Seventeenth International Geological Congress, Moscow, U.S.S.R. Interstate Oil Compact Commission, Santa Fe, New Mexico.
AUG. 10-15	Third Michigan Oil & Gas Assn., Mt. Pleasant.
SEPT. 15-17	National Petroleum Association, Hotel Traymore, Atlantic City, New Jersey.
SEPT. 27 OCT. 1	American Gas Association, Cleveland, Ohio.
OCT. 11-16	Oil-World Exposition, Houston, Texas.
14-16	American Association of Petroleum Geologists, Mid-Year Meeting Pittsburgh, Pennsylvania.
14-16	Independent Petroleum Association of America, Houston, Texas.
21-22	Michigan Petroleum Association, Traverse City, Michigan.
29-30	Mid-Continent Oil and Gas Association, Texas Division, Dallas, Texas.
NOV. 8-12	American Petroleum Institute, (Annual), Chicago, Illinois.

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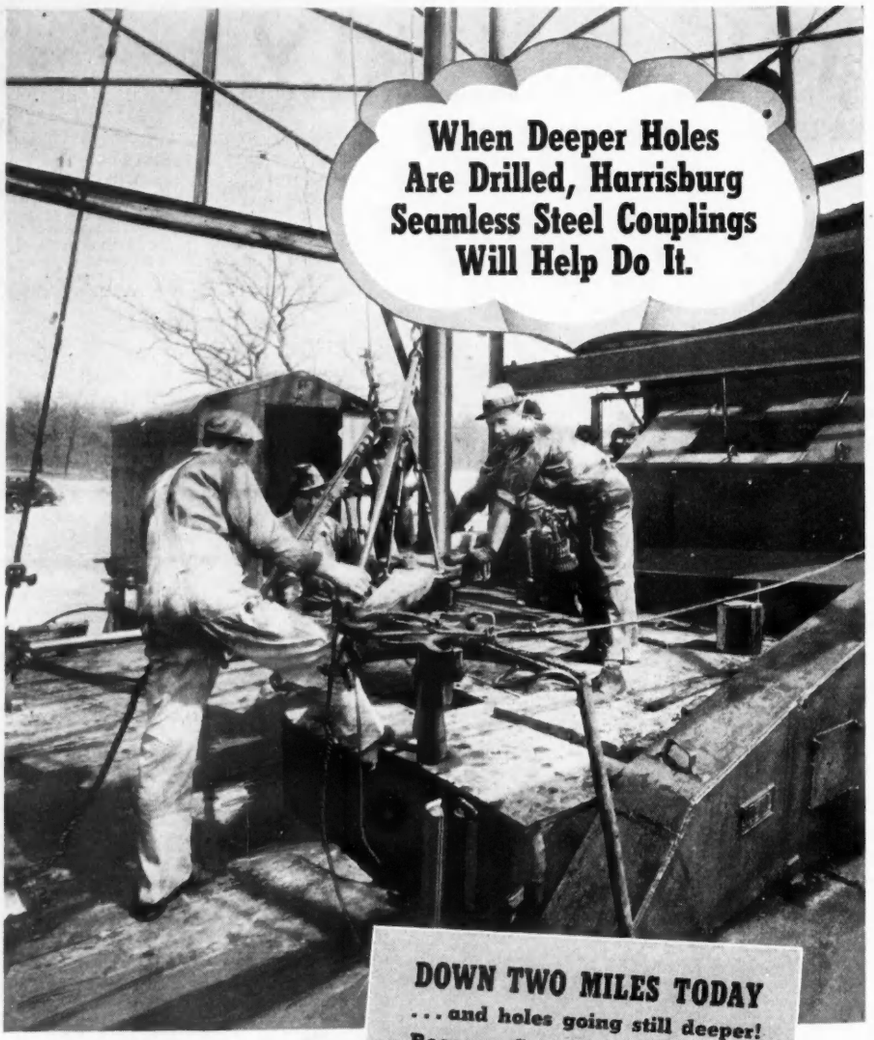
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LOOKING AHEAD

WITH THE EDITOR

Much Progress in Pipe Line Engineering . . .

To Publish Special Number on Subject . . .

THE OIL industry operates more than 115,000 miles of pipe lines, built at a cost exceeding one billion dollars. Because of the vast network of trunk lines now in operation, the day of large construction programs appears to have passed. Today, this branch of the industry is devoting its efforts toward more efficient operation, and the ways of meeting approaching obsolescence and maintenance schedules. Development within the past few years has been rapid, and these improvements will be the principal subject of

THE OIL WEEKLY'S
Engineering Symposium
Pipe Line Number
June 28, 1937

This issue will carry articles on many new and interesting developments.

The trend has been toward greater mechanization of construction methods, and this development should increase in the future. The technique of welding pipe has improved greatly, and semi-automatic operation is likely to come. Higher tensile strength seamless and welded pipe of shorter length are popular today, and is due to be further developed.

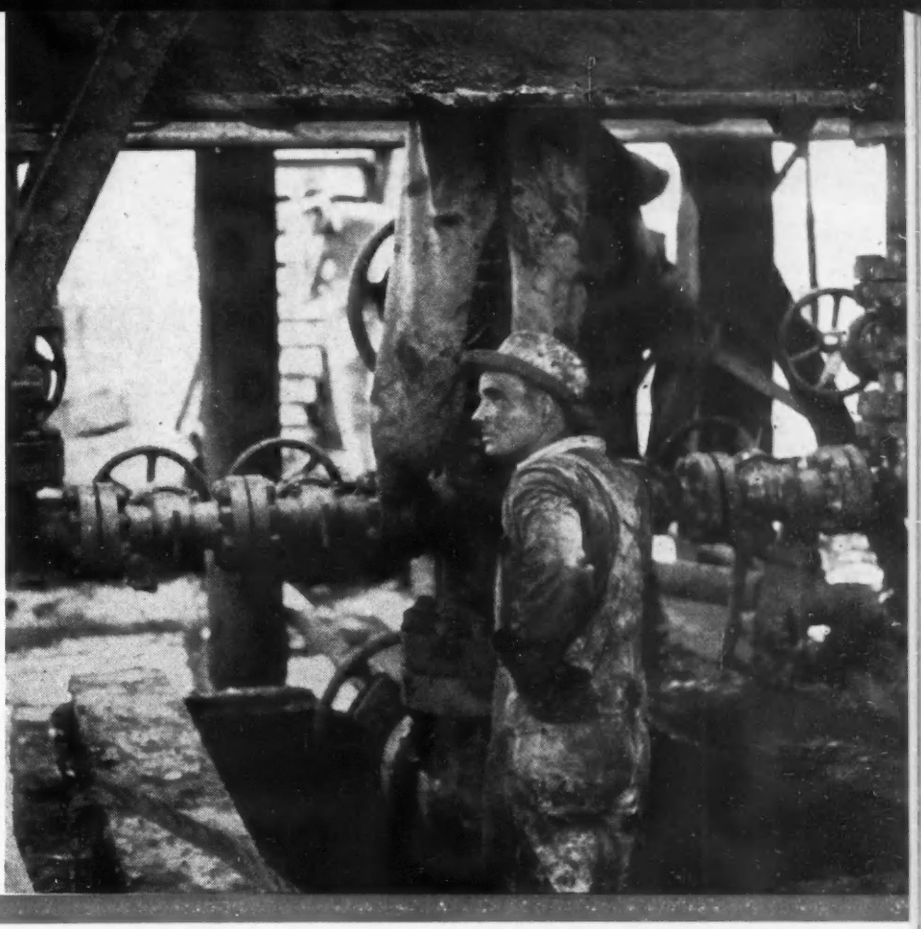
Every type of pumping equipment is being improved. The modern main line pumping plant is a far cry from the plants of 10 and 15 years ago. There is a definite trend toward relatively high-speed compact units of lower first cost.

Greater attention is being given to corrosion of these underground railroads, and as knowledge of its action increase much progress is being made in combatting it.

Refinements growing from scientific inventions and research will be successfully applied to all forms of crude oil transportation.

THIS WEEK

» UNITED NORTH & SOUTH Development Company's Stoddard 1, three miles southwest of the Buckeye field, Matagorda County, discovered a new Texas Gulf Coast field June 14 when it came in producing 37 gravity oil from 2800 feet into the Frio formation at 9978 feet. Stoddard 1 attempted to blow out several times, and the crew is shown here installing a heavy Christmas tree. This is the second deepest producing field in the district.



FOLLOWING an opinion by the Texas Supreme Court, in which the state's anti-trust laws were held constitutional, it appears that 17 major oil companies and three trade associations must again stand trial on charges of violating them by adopting a code of fair practices for marketing. The case was filed in 1931 and sought penalties in excess of $17,500,000 and dissolution of charters. The case has been tried on several legal phases in the past, but never on its merits, which is expected to be the basis of the new trial. **Page 10.**

PRESIDENT ROOSEVELT on June 14 signed the Connally act extension bill. Therefore, continuance of the operation of this contraband oil act to 1939 is assured, as is the present oil conservation policy of the Department of Interior. Likewise, the way has been paved for establishment of a federal tender board, at Corpus Christi; should it be deemed necessary. **Page 10.**

RECOMMENDATIONS for reducing depletion allowances of oil companies has been made by the treasury department to Congress, but is expected to be opposed by representatives from the oil-producing states. The treasury department estimates it is losing as high as $40,000,000 by "excessive depletion allowances. **Page 11.**

SOME operators at the Texas state-wide proration hearing asked why the state should continue to play the role of "good Samaritan," when imports are increasing and other states have higher allowables. **Page 11.**

A PATENT has been applied for on a method of processing natural gas into carbon black, acetylene, and other products of commercial importance. If granted the rights will be assigned to the State of Texas for further development. The patent entails the use of electrical discharges in the gas processing. It is claimed that much of the gas now being wasted can be utilized, at least a far larger percentage **Page 11.**

CURRENT SITUATION

(Latest Available Weekly Data)

Outlook.—Unsettled, as effects of gasoline price cuts are awaited.

Crude Market.—Hope smaller for early general price advance.

Refined Oil Markets.—Less firm following reduction of gasoline prices to dealers.

Crude Production.—Up to 3,507,350 barrels.

Crude Runs to Stills.—Up 55,000 barrels daily.

Crude Stocks.—Up 778,000 barrels to 307,223,000.

Gasoline Stocks.—Down 498,000 barrels.

Gas and Fuel Oil Stocks.—Up 756,000 barrels.

Drilling.—Completions last week 617, up 19.

See* MARKET SECTION *for Details

THERE have been many refinements in production practices during the past year. The general trend has been toward prolonging the economic life of every type of oil field. Pressure maintenance, control of gas-oil ratios, choking procedures, better gas-lift operations, paraffin control, acidization, and more efficient application of pumping equipment have been factors in an advanced production program. The feature section of this issue is devoted particularly to production advancements. **Page 15.**

A FAR cry from the haphazard methods of the past, is the modern means of maintaining deep well pumping equipment, which has become a highly exacting science. Many of heretofore alarming expenses suffered from continual liner repair have been reduced, in some cases as much as 50 percent. **Page 23.**

IMPROVED gas-lift methods have made it possible to produce small quantities of liquid economically. Advanced knowledge, better methods, improved machinery and better coordination of equipment and operations are the factors that have brought about improvements in gas-lift. **Page 19.**

Anti-Trust Suit

CHARGES BROUGHT IN 1931 BY ALLRED MAY BE TRIED AGAIN

Austin.—Trial of the charges that major oil companies, back in the late Twenties, conspired to violate Texas anti-trust laws and control the retailing of crude oil products was in prospect following an opinion by the Texas supreme court finding that Texas' anti-trust laws are constitutional.

The court remanded to 98th district court for trial the case filed in 1931 by Governor James V. Allred, then attorney general, charging that adherence to the "Code of Fair Practices for Marketing Refined Petroleum Products" constituted a conspiracy in violation of the monopoly statutes.

Filing the suit, Allred asked maximum penalties, in excess of $17,500,000, and dissolution of charters. District Judge J. D. Moore sustained the general demurrer by oil companies on the grounds that the National Recovery Act superseded Texas' anti-trust laws.

Never Tried on Merits

After the state had appealed to the third court of appeals at Austin, the NRA was invalidated. The appeals court, however, sustained Judge Moore's judgment, but on different grounds: that the Texas anti-trust law was unconstitutional.

The supreme court opinion not only orders a trial of the suit, but finds Texas anti-trust laws are valid.

General opinion is that no attempt will be made to appeal the case to the United States supreme court. In the first place, there was never a trial on merits—on the allegations of violations—hence all decision have been solely on a question of law. The U. S. supreme court adheres to the general rule that it will follow the state courts in the construction of state laws, unless a federal constitutional question is clearly presented. The nearest approach to a federal question is whether the exemption of farm cooperatives from the anti-trust law constitutes a discrimination such as forbidden by the federal constitution.

The Political Angle

The next topic of paramount interest is when the retrial will be started. From the standpoint of political necessity, it is believed that Attorney General William McCraw will seek an early setting. McCraw himself carried the case from the civil appeals to the supreme court; hence whatever credit there is for winning the case in that court should go to McCraw. While the suit likely will continue to be called the "Allred suit," McCraw cannot afford to neglect it, even if he were so inclined; and personal comments by McCraw indicate he is not so inclined.

His comment on the decision was brief, but significant: "We are highly pleased with this victory in the supreme court. Its true significance lies in the fact that suspension of the anti-trust laws for the past three years had led to the development of many practices that are highly improper. The announcement of the decision will, of itself, clear evils and vices that have distressed many individuals and many businesses for the past months."

Moore May Not Hear Case

Still another offshoot of the opinion is the possibility that the case may be tried before a different judge. There are two other Travis County courts to which the case could be transferred. Over one presides District Judge Ralph Yarborough, a potential candidate for attorney general. Whether he could accept the transfer, if attempted, is problematical. He was an assistant attorney general when the case was tried; he was appointed to the post he now holds by Governor Allred. These facts may, in his own mind if not in law, disqualify him. The other local judge is Roy Archer. His previous experience was as county judge.

In the opinion itself, the section studied most closely by oil company attorneys was that discussing whether or not the state had asserted a cause of action. The court's conclusion was that a cause had been stated and the petition of the state was not subject to general demurrer.

Cureton's Opinion

The "cause" was the "Code of Practices." This was initiated by the industry working through the American Petroleum Institute. It borbade certain practices as not conducive to the best interests of the industry as a whole. The code was submitted to the federal trade commission and approved by that commission.

Here is what Chief Justic C. M. Cureton, who spoke for the court, had to say:

"The court of civil appeals was of the opinion that while some of the rules might furnish a basis for the state's charges, some were not unlawful. We express no conclusion as to the correctness of the last conclusion. . . .

"In our opinion the rules, when considered as a whole, in the light of the state's allegations, do furnish a basis for an actionable charge. . . . Indeed, some of the rules on their faces are strongly suggestive of a violation of the anti-trust statutes. . . . "

The court then details the rules which it considers are "strongly suggestive":

That which undertakes to restrict the free installation of filling station equipment;

The rule prohibiting the lease and agency dealer contract; "It is a fair deduction that the purpose of this rule was to create a common practice among companies so as to avoid competition."

Rules 8 and 9, respectively, forbade donation of products to aviation companies; donation of gifts to purchasers of products.

Takes In All of Code

The opinion continued through the entire body of the code:

"Rule 17 requires . . . posting of prices. The state alleges that the purpose and resultant effect . . . was to destroy competition and we cannot say

[*Continued on Page 76*]

ACT CONTINUED

President signs Connally extension bill June 14

Washington, D.C.—With the signing of the Connally bill by the President June 14, continuance of the operation of the Connally contraband oil act until June 30, 1939, has been assured and the way paved for establishment of a second Federal Tender Board, at Corpus Christi, if investigations now being made by Interior Department officials show its desirability.

Through the extension of the law, it was pointed out by Secretary of the Interior Harold L. Ickes, continuation of the present oil conservation policy of the department is assured, as well as continued joint action in the conservation of oil and gas between the Federal Government and the five states which are parties to the interstate oil compact. Legislation continuing the Government's ratification of that compact for another two years is expected to come before Congress in the near future.

While little difficulty was encountered in putting the measure extending the "hot" oil act through Congress, supporters in the Senate were somewhat disappointed over the House's "sit down strike" which forced the adoption of a two-year period in lieu of the permanent extension provided by the Senate or the four-year period suggested by Senator Connally as a compromise. However, it was pointed out, the Texas conservation law expires in two years and if then continued further Congressional action can be readily secured.

CASE POSTPONED

Stone sets Madison trial for October 4

Madison, Wis.—Federal Judge Patrick T. Stone last week postponed trial of the government's "oil conspiracy" case from September 27 to October 4. The change was made to prevent conflict with a large calendar for the summer term to be held in Superior.

Twenty-four major oil companies, 71 of their officials and three trade journals are involved in the charges, which allege conspiracy to violate the anti-trust laws through illegal operation of buying pools in the East Texas and Mid-Continent oil fields. The government alleges the defendants, who have entered innocent pleas, attempting to artificially raise the retail price of gasoline to consumers of 10 mid-western states and to squeeze out independent jobbers. The trial is expected to extend from three to six months.

Want Increases

LARGER ALLOWABLES ASKED BY MANY AT HEARING

Austin.—Should Texas continue playing "the good Samaritan" role in order to maintain the oil price structure while oil imports increase and in sister states per well allowables run as high as 500 barrels?

This queston was before the Texas Railroad Commission June 18 following the state wide oil and gas proration hearing. It was stated by R. B. Newcome of West Production Company, and other operators present gave similar expressions.

Newcome, making it clear he was speaking for himself as an individual, pointed out that on the day following notification of June cuts, he read that Louisiana had upped her allowables 13,750 barrels; that one field went to 15,000 barrels, giving it a per well allowable of 500 barrels; that imports during that week were up from 1,108,000 to 1,189,000 barrels.

"Why is it so essential," he asked, "that Texas play the good Samaritan role?"

Feel Allowable Too Small

The daily Texas allowable on June 17 was 1,407.562 barrels, an increase of 57,300 barrels since June 1. During June 653 new wells were completed; since January 1, completions number 4995.

Bureau of Mines recommendation for July was 1,375.100 barrels, an increase of 20.700 barrels over June, but still considerably less than current production. Nominations filed by purchasers amounted to 1,623,636 barrels, which was 22,189 barrels off from June.

Many Request Increases

In the face of the apparent necessity for a decrease, numerous requests were filed for increases. Guerra asked an increase from 495 to 595 barrels, to meet refinery needs. Tom O'Connor, where the per well allowable is now 80 barrels, asked for an increase of 100 barrels. Regarding Placedo and Flour Bluff, Barnsdall Oil Company asked that these fields be placed on a parity with others of a like nature. The request was supported by numerous petitions. West Beaumont, since its segragation from Amelia, has never received a "new field" allowable, the commission was told.

Gulf Oil Corporation and West Production Company joined in requesting an increase for Thompsons field. It now gets 11,200 barrels. Gulf's nominations alone are 12,863 barrels. They claim they have a firm demand for 20,000 barrels which could be produced without waste.

J. A. Elkins of Pure Oil Company made a strong plea for a higher allowable for Van and ended up by saying the entire system was "cockeyed" to him.

Tide Water Associated Oil Company asked that the commission remove the field top at Cayuga so that new wells could take their place on the schedule at the current allowable factor.

Operators in West Central Texas asked that they be put back on the May potential factor of 8 percent. They were cut to 7 in June. This would increase the area only 300 or 400 barrels.

New Wells Not Taken Care of

Henderson area operators requested an early decision from the commission on changing to a potential basis of allocation. It was said that potentials range from 200 to 12,000 barrels, yet the field is on a straight per well basis.

New refinery equipment to increase the capacity of Anderson-Kerr area 4000 barrels is under construction, yet the per well allowable was cut from 45 to 35 barrels. Restoration to 45 barrels was asked.

In the Panhandle Danciger representatives said they need more oil, but were willing to try to get along.

Conroe spokesmen pointed out the field had been cut 10,000 barrels in 60 days, and asked at least a partial restoration.

DEPLETION RATES

Proposed reduction is opposed by oil states

Washington, D. C.—Representatives in Congress from the oil-producing states are preparing to resist adoption of Treasury recommendations for rewriting of the depletion provisions of the revenue law, under which operators of oil and gas wells now are permitted to charge off to depletion as much as 27½ percent.

While estimates of the Treasury Department place the loss in revenue as a result of alleged excessive depletion allowances at as high as $40,000,000 a year, it is said in other quarters that this figure is high and that the Government would derive but little additional revenue by a reduction in the allowance. The theory of the depletion allowance is that as the oil and gas are taken from the ground the capital assets are correspondingly lowered and the operator is to be permitted to write off his investment. The allowance varies, oil and gas operators receiving the greatest allowance, while operators of sulphur deposits are allowed 23 percent, metals 15 percent and coal five percent.

The question of the depletion allowance is expected to be one of a number of matters to come up for study before the joint Senate and House committee which is to study the question of tax evasion, as outlined by President Roosevelt in his message June 1, and make a report shortly after the convening of Congres next year.

The President's mesage was directed mainly to evasion of taxes, and eight major methods of evasion were listed in a report from Secretary Morgenthau, which accompanied the message. In addition, the depletion and community property provisions of the law were cited as instances where the revenue act itself made avoidance possible.

The depletion provision, the Secretary reported, offers "perhaps the most glaring loophole in our present revenue law.

"Since 1928," he said, "large oil and mining corporations have been entitled to deduct from 5 to 27½ percent of their gross income as an allowance for the depletion of their mines or wells, and the deduction may be taken even though the cost of the property has been completely recovered."

Secretary Morgenthau cited cases of companies which deducted from $152,000 to nearly $3,000,000 under the depletion provisions for a single year, and asserted that the annual loss in revenue is about $75,000,000, nearly evenly divided between the oil and the other extractive industries.

Complete elimination of the provision is sought by the Treasury, although it is considered doubtful whether Congress would agree. Recommendations to that end were made by the Treasury in 1933, but nothing was done.

NEW PROCESS FOUND

Carbon black method to go to Texas University

Austin.—Dr. E. P. Schoch, director of the bureau of industrial chemistry at the University of Texas, announced here that he has applied for a patent on a method of processing natural gas into carbon black, acetylene, and other products which he said were of commercial importance. The patent entails the use of electrical discharges in the gas processing.

Rights to the patent will be assigned to the State of Texas for further development. Dr. Schoch said the process has been definitely used in the production of carbon black and acetylene and he believes that it could be extended to other products and make possible the utilization of all natural gas now wasted in Texas.

Two Outstanding Results

In a statement announcing the discovery, Dr. Schoch said that that part of the gas now being sold "should bring at least five times as much" as it does.

"I have developed a method of controlling the electrical discharge through natural gas which makes it possible to transform gas economically into other commodities. Two outstanding results—a larger yield of real carbon black than is now obtained and an economical production of acetylene—are already shown. Almost every other compound can be made from acetylene, including synthetic rubber.

Dr. Schoch decried the use of natural gas for fuel, asserting that because of its natural constituents it is of vastly more value for the products into which it could be processed.

The Legislature in its regular session appropriated $12,000 to Dr. Schoch's bureau to continue the research into further uses for the product.

Oil Shares Are General

By L. J. LOGAN,

Stocks of oil companies have demonstrated exceptional resistance to the sharp general decline of security prices in past three months.

Oil shares have shown moderate losses in selling flurries and strength in rallies.

IN the backsliding of the stock market since March, oil company shares have conspicuously resisted the general downward movement, showing smaller than average declines. In several instances, oil shares have given up practically no ground despite more than two months of hammering down of market values generally.

This outstanding performance of the oil group in the downward movement follows, moreover, a similar display of exceptional strength while the market still was going up, before the March reversal. In that pre-recession period, the oil stocks were leading the way to higher price levels.

Oils Viewed With Favor

This record of performance, in bright days and dark, indicates that moneyed opinion takes a comparatively favorable view of the oil industry's situation and outlook. In effect, the traders and investors are signifying the opinion that any impairment of oil company earnings in the immediate future likely would result primarily from adverse general conditions, rather than from unsatisfactory situations within the industry itself.

Similarly, the stock market action likely reflects substantial opinion that oil company earnings will hold up comparatively well in the face of any possible impending general recession of business; that oil companies would continue to show relatively good results for some time even in the face of general circumscribed profits.

Outlook Considered Good

This situation in the stock market is one in which shrewd men are saying with dollars what they think of the oil business and its outlook.

It is a situation in which informed opinion is saying concisely: The oil industry has better than average prospects, but in the long run it must go as general business goes, up or down. The inference is that if business resumes the upward trend, oil companies may be expected to show especially good results; that a recession of business would find oil companies making better showings than concerns in some other lines; but that the oil industry ultimately would be affected, favorably or unfavorably, by the general trend.

Facts Justify Market Trend

When all factors and history are carefully considered, it appears that this stock market analysis of the oil industry's outlook is remarkably accurate.

The analysis seems incisive with regard to both of the two important conclusions, (1) that the industry occupies an exceptionally favorable position, in comparison with other industries, and (2) that the industry's welfare is inextricably intertwined, nevertheless, with the general economic machine.

Oil Situation Good

Evidence of the industry's comparatively favorable position is abundant. The inventory position is the best in many years, with storage of crude and refined oils representing minimum working stocks. Moreover, that position likely will be maintained for some time, as new supplies are being held again in balance with consumer demand. Stocks are relatively low, and production is conforming with requirements in June, despite overproduction in the preceding four months. The industry's markets, consequently, remain stable, and prices are comparatively good.

Consumption of petroleum, meanwhile, is setting new all-time records this year, running around 10 percent ahead of last year's levels. Volumes of business of the oil companies consequently are setting new records this year.

Earnings at 1929 Levels

The favorable prices and the large volumes of business have pushed the earnings of oil companies this year to levels around those that prevailed in 1929. This year's profits are sharply higher than those of last year, even though 1936 afforded satisfactory results.

Within the oil industry itself, there have not arisen any circumstances to alter this exceptionally favorable earning situation. The industry continues in first class condition, and promises to remain so in the coming months. Any unfavorable reactions in the industry for several months in the future likely would be based primarily on forces outside the industry.

General Trends Affect Oil

The experience of the oil companies in the recent depression offers strong support of the idea that the oil industry's welfare in the long run must depend to a great extent, nevertheless, on general economic developments.

That memorable economic breakdown demonstrated that oil companies cannot prosper while companies in other lines are going into bankruptcy, even if men do drive their automobiles to the commissaries for government relief.

Depression Brought Losses

Gasoline is among the last commodities to decline in consumption; but when food is obtained through charity, gasoline is bought in two-gallon lots; and when mills are idle, lubricants and fuel oil are not needed. Petroleum consumption contracted only by a small percentage in the recent depression. But the declining volumes of business, coupled with depressed prices, were more than the oil companies could successfully face;

Stronger Than Market

Associate Editor

and losses from operations became the rule.

East Texas Added Trouble

It is true that the effects of the general depression were accentuated by the concurrent disorder that attended the early development of the market-breaking East Texas field. Some maintain that the oil companies would have weathered the depression much more creditably if they had not been obliged to contend at the same time with the disheartening special difficulties that originated in East Texas.

But the fact remains that East Texas was not responsible for the shrinkage of petroleum consumption or the declining volumes of business of oil companies.

The worst that the big field did was to make more difficult the extraordinary problem of cutting down the supplies of oil into conformity with diminishing demand. Furthermore, results in controlling the field were reasonably satisfactory, despite temporary periods of overproduction.

The evidence is strong that oil companies generally must profit or lose, as general conditions are good or bad.

Oil Shares Scrutinized

In consequence of the sharp reaction of the markets for securities and also for commodities in the past three months, all stocks, including the oil company shares, currently are being subjected to thorough and comprehensive scrutiny, in search of any weaknesses or merits.

Whereas investors and speculators until the current recession appeared to be guided primarily by the immediate outlook, they now are in a more deliberate mood, and before making commitments, are giving greater consideration to the long-range possibilities of the various securities.

In such long-range looking ahead, as regards the oil industry, various factors make the oil company shares appear attractive, at least for some purposes, but other circumstances suggest caution.

Special appeal of oil stocks is based on the industry's present favorable situation and outlook.

But current sympathy of prices with broad decline indicates that long-term earnings of oil companies are expected to follow the general business trend.

Industry Still Growing

From the standpoint that petroleum is a going and growing industry, exceeded in capital investment only by the agricultural, railway, and utility industries, the established oil companies have a strong appeal. This is an oil age, and the oil companies, now doing more business than ever before, have the prospect of still further gains in business. It is indicated that for several decades, as population increases, oil consumption must inevitably continue increasing, although the upward trend may not be as sharp as in the past.

Now More Stable

Meanwhile, the industry, with aid of state and federal governments, has for some years been successful in making production of petroleum products conform closely with consumer demand, bringing about more stable markets and prices, and more consistent earnings, than in the past. The proration age still is too young for a continuation of the stable conditions to be taken for granted. But it is promised, at least, that the future will bring greater stability than the past for oil companies.

Consequently, oil company securities have assumed more of the characteristics of an investment medium than in the past, when the erratic earnings caused commitments in the oil shares to be classed generally as speculation.

Still Considered Speculative

Nevertheless, even now the conservative investors take the view that oil stocks in general, because of continued large fluctuations in earnings from year to year, are not of investment calibre, and that the shares still are fundamentally speculative; thus being unattractive for long-term holding, although suitable for speculative buying and selling, as circumstances foreshadow changed earnings and higher or lower market prices for the securities.

In addition to these fundamental considerations, various special factors now are being taken into careful consideration. For these factors have an important bearing on the relative merits of different oil stocks, and on the relative desirability of different stocks for fulfilling the particular requirements of different individuals.

Producing Most Profitable

Thus as between the different branches of the petroleum industry, the producing division, dealing with the basic raw material, in recent years has afforded the best opportunities for profit. Profits have been less satisfactory in the refining division, while the results have been least favorable in the marketing branch. Prices of crude oil have been more stable and profitable than the prices of the refined oils at the refineries and the service stations.

Consequently, there has been for some time and continues to be a general preference for the securities of companies that have important producing properties and crude oil reserves, whether such companies are large, integrated concerns or smaller companies.

Incidentally, capital investment in the producing division is by far the largest for any division, representing nearly $6,000,000,000, or about 40 percent of the more than $13,000,000,000-investment in the whole industry. The remainder is divided among the transportation, refining, and marketing divisions. The larger companies, of course, have heavy investments in those divisions, as well as in producing properties.

STRIPPERS MEET

Go on record as opposing wage and hour terms

Tulsa.—The third annual meeting of the National Stripper Well Association was held Thursday, June 17, at Mayo Hotel, Tulsa, with more than fifty representatives present. Operating and legislative problems of the industry as applied particularly to stripper well production, were the topics of primary interest to the group; which is a nucleus of 17 localized associations. New officers were chosen for the ensuing year, with W. W. Warner of Nowata succeeding William Bell of Robinson, Illinois, past president of the association.

President Bell opened the executive meeting with statements concerning the unconstitutional NRA, and present labor code legislation before Congress, gasoline price decrease established recently by a major firm, and the possibility of changing the 27½ percent depletions allowable. Regarding labor and questionable NRA policy, Bell pointed out the peculiar position of the stripper operator and the very narrow margin of profit under which he must frequently operate. He denounced the establishment of minimum wages and maximum hours as of possible application to the stripper operator, calling attention to the necessity of making such proposed enactments flexible, as through strict application of such rulings as proposed in NRA the stripper industry, based upon the production of 280,000 wells in 26 states, would have been doomed.

Executive Vice-President H. B. Fell, Ardmore, Oklahoma, who was unable to attend the meeting by reason of physician's orders, presented by proxy a statement and report of major interests of the organization during the past year.

Small Producers Important

The morning session was completed with the appointment and direction of committees to consider: effect on crude oil prices of recent cuts in the price of gasoline; legislation regarding minimum and maximum wages and hours as proposed to Congress; the President's proposal to eliminate the 27½ percent depletion clause as applicable to the stripper; Interstate Compact; excise tax, pollution measures; and the election of officers for the coming year.

The afternoon session was given over to the reports of the various committees, and to discussion of findings. Specific recommendations were made in a majority of instances, and the association found against the extension to stripper production of the proposed labor provisions now under consideration and went on record as demanding that a separate classification set up in any labor legislation affecting the oil industry, to make possible the continued operation of these properties.

The committee for consideration of the President's proposal to eliminate the 27½ percent depletion clause from any revenue bill which may be presented to Congress, determined to make a unified appeal to the representatives of the oil producing states of the Nation.

The committee on the election of officers chose W. W. Warner, Nowata, Oklahoma, President; H. B. Fell, Ardmore, Executive Vice President; H. J. Whitehill, Tulsa, Secretary-Treasurer; and C. J. Tucker, Wichita Falls, Carl Weiner, Chanute, W. J. Brundred, Oil City, W. H. Smith, Ardmore, P. B. Flynn, Wichita Falls and T. B. Steele, Robinson, Illinois, as vice presidents. W. W. Warner adjourned the meeting to conclude the annual representation.

PROBE STARTED

Pennsylvania operators say probe unnecessary

Harrisburg.—Pennsylvania's widely publicized legislative probe of the oil and natural gas industry to determine whether it should be brought under state regulation formally opened here last week with leaders in the industry testifying that both regulation and the investigation were unnecessary.

The investigation was forecast early in the year when Governor George H. Earle said he would seek its authorization by the legislature. An appropriation of $50,000 has since been made for the purpose.

J. Howard Pew, Philadelphia, president of Sun Oil Company, told members of the commission meeting here that the inquiry was "unnecessary, unwarranted and calculated only to increase the difficulties of the industry." Adding that the petroleum industry needed no state regulation, he declared that "half of the retail price depends on factors in regard to which the oil companies have no influence whatever. Freights are fixed by the transportation agencies under government regulation; the retail dealer's allowance is fixed by the dealers themselves, and the taxes are fixed by government."

Pew Blames Legislation

Pew blamed legislation such as the chain store tax passed by the 1937 legislature, now under attack in the courts as unconstitutional, to be responsible for creating "chaos" in the industry because oil companies have been forced out of retailing. "So long as the oil companies operated filling stations of their own and were a factor in retailing, their participation afforded an element of balance in the determination of the retailer's spread," the Sun Oil Company president declared. "But since the oil companies have been forced out of retailing by punitive chain store legislation, this balancing factor has been lost. Thousands of retailers were left completely 'on their own' with each determining for himself what he thinks he ought to charge for his services."

W. C. Yeager, vice president and general manager of Atlantic Refining Company, also demanded greater vigilance of the "tax evader" who, he said, had a margin of several cents per gallon to attract trade. He pointed out that a drive on gasoline tax evaders several years ago netted the state "an extra $5,000,000 and cleaned up petty price wars for months." He declared the Pennsylvania oil industry to be "in a healthy condition of production" and pointed out that the price of gasoline

[*Continued on Page 76*]

SITUATION STUDIED

At Pennsylvania Grade Association meeting

Buffalo, N. Y.—Labor and production problems were among the topics discussed before the Pennsylvania Grade Crude Oil Association at the fourteenth annual convention June 10-12 aboard the S. S. Seeandbee, sailing from Buffalo.

Discussing the current labor unrest in the oil and other industries, T. P. Thompson, Jr., association president, advised members to "trust your employes and keep their spirits high." Referring to new laws, he said they were not as important as "relations with the men in the ranks whose skill and devotion have brought our industry to its high position."

Scores Against Agitators

"New influences are being brought to bear on the personnel of our organizations to convince them that their interests and ours are diverse and conflicting. There are some who want wage earners to believe that they can prosper only when management is brought under the domination of a professional exploiters. If you cherish as I do the harmonious relationship which we have traditionally enjoyed with our working associates you will exercise every logical and legal influence at your command to prevent a wedge of discord being driven in your business."

Trend Toward Central Power

Fayette B. Dow, vice president and general counsel of the association, reviewed legal activities of the association during the past year and plans to register the emblem in all the states and in foreign countries. He reviewed the legislative situation in Washington and said activities centered in "the persistent efforts of the central, federal government to enlarge its power under the commerce and general welfare clauses of the constitution. On the question of power I believe that in the end the federal government will win out. The shifts in government, which have been greater in the last few years than for many previous generations, are all in the direction of central power—all away from individual freedom, from democracy.

"The choice between authority and freedom is a big one and I have no desire to discuss it today," Mr. Dow added. "I assume that the battle is almost over and that authority will win. But I do pray for this: I hope those who have fought for power will pray for wisdom."

Belief that "the potentially disastrous tax situation in which this industry and its customers find themselves can be corrected" was expressed by Victor H. Scales, director of publicity, American Petroleum Industries Committee. The problem must be given a fair degree of the time, attention and ability that leaders in the industry are giving to their own business enterprises.

"There must first be analysis of our tax problems, general recognition of

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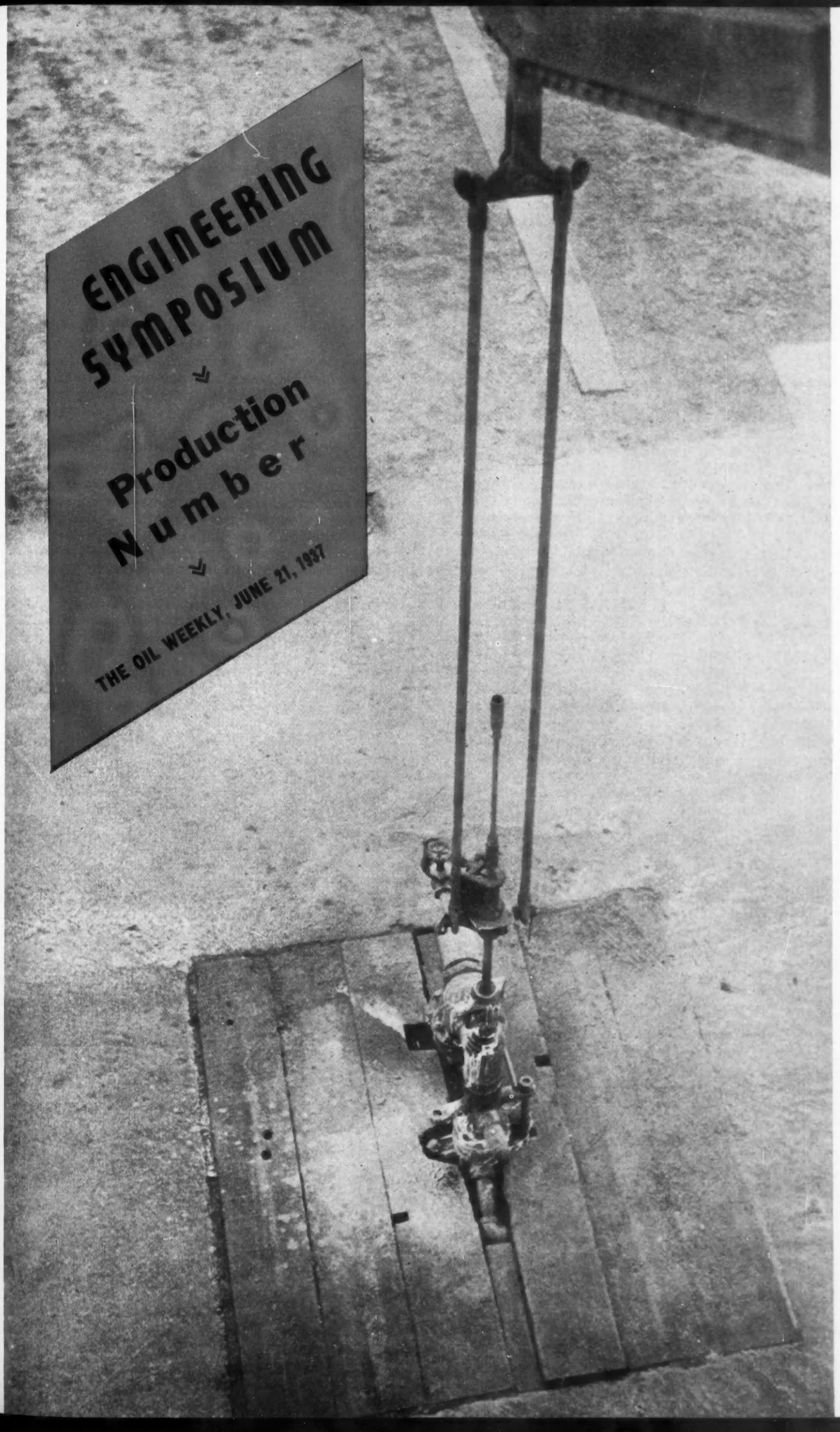
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THE OIL WEEKLY, JUNE 21, 1937

Production

REFINEMENTS in production practices have done much during the past year to prolong the economic life of oil fields of every type. Pressure maintenance, control of gas/oil ratios, choking practices, improvements in gas-lift operations, paraffin control, acidization, and more efficient application of the pump have been factors in an improved production program. The increased demand for oil of all grades also has prompted an extra effort in marginal fields that are seriously affected by low oil prices. Serious thought has been given to flush flowing fields, conservation of the formation energy being the chief objective.

Better Choking Applied

The correct use of chokes or flow beans on flowing oil wells is recognized as an important aid in the control of factors giving the most efficient results. Experiments have been conducted in every major oil producing district during the past year in an effort to find the most effective and efficient choke type and size. The quick response of a producing formation to changes in choke sizes has surprised many operators who had given little thought to this phase of operations.

A sudden increase or reduction in the size of a choke on a strong flowing well usually does not materially affect the gas/oil ratio, formation pressure or percentage of water. but similar changes on a weak flowing well often cause violent fluctuations that lead to serious trouble. As flowing wells grow older and formation conditions change, adjustments in choke sizes are necessary. Many wells have been restored to a flowing status by the use of a correct choke size, where water encroachment was a problem, or full utilization of the formation pressure was necessarv. Wells of this type are affected sharply by fluid levels rate of production, and origin of water. Every well has its critical or most efficient producing rate. and at anv time during its flowing life the most effective back pressure can be found. The choke is the chief medium of control.

Bottom-hole chokes have been very effective in reducing the gas/oil ratio in some fields. The bottom-hole choke has become popular in wells that produce only a small amount of oil with a large flow of gas this arrangement being very effective in eliminating freezing that formerly occurred with surface choking.

The selection of the best producing area of an oil formation is an important consideration in every major producing district. The gas, oil and water strata usually are so closely related that a careful study of the entire formation is necessary to find the most desirable producing level. The control of gas/oil ratios has been achieved in several districts that formerly, produced from the full thickness of the gas and oil formation, the exclusion of the troublesome gas stratum having been the principal factor in the improvement.

The selection of the proper part of the producing zone requires a careful survey of the entire producing body. Several fields that originally were classed as gas producers have been converted into heavy oil producers by shutting off the upper gas flow and deepening into the oil zone. Other fields that showed a heavy production of salt water have made a much better record after plugging operations or other corrective measures were applied. Electrical logging devices and use of gun perforators have done much to assist the operator in locating the best portion of the producing zone and in making possible the utilization of only that portion. Several formations show alternating layers of gas, oil, water, and non-productive sands and shales. Operators in all districts are giving increased thought to an analysis of producing formations.

Pressure Utilization

Pressure maintenance is a broad subject, and usually it is expanded to include proper pressure utilization. Producing companies everywhere agree that production practices should be centered on methods that give the minimum pressure decline per barrel of oil produced. Surplus gas is being injected into the producing formation in a few fields, and the results have been generally satisfactory. The South Burbank, Oklahoma, and Sugarland, Texas, fields are examples of producing areas that have been bolstered by the injection of gas. Where cheap gas is available, a pressure maintenance program through the injection of the gas into the producing formation often is justified. It is necessary to arrive at some type of unit operation, where the field is owned by several companies.

Most of the large operating companies are more interested in the proper utilization of formation energy than in repressuring or pressure maintenance operations. It is impractical to inject gas into a producing formation where the cost is excessive or the future outlook for recovery is doubtful. The principal thought is being directed toward conservation of the formation energy at hand.

The value of an effective gas conservation program is proved by the low gas/oil ratio in the Yates, Texas, field. The gas/oil ratio has been forced downward to an average that approaches the solution ratio, and during the process operators have helped to bring about an equalization of reservoir pressure. The high gas/oil ratio wells either have been shut in or worked over during the program that has given a very low pressure drop per million barrels of oil produced. The field now is being produced in a manner that insures a long flowing life.

Paraffin Control

Paraffin control has been attempted in various producing districts, and progress has been reported along several methods of attack. Both flowing and pumping wells are affected by paraffin, and it is known that the method and rate of production sharply affects the rate of accumulation. In the East Texas field troublesome wells are flowed at a rapid rate to obtain the small daily allowable, the flow of warm oil tending to decrease the accumulation of paraffin near the surface. The pumping wells are less fortunate but solvents have been used satisfactorily to remove the paraffin accumulations.

Practices

DIRECTED TOWARD PROLONGING PRODUCING LIFE IN PAST YEAR

By BRAD MILLS,
Associate Editor

When the tubing is kept full of oil, the accumulation of paraffin is reduced to a minimum. This indicates that continuous operation of wells on the pump is more satisfactory than irregular or spasmodic pumping operations. It has been found that oil kept in motion at a reasonable temperature will not result in a high percentage of paraffin deposits unless there are definite "breaks" or dry places in the fluid flow. The bulk of the deposition or precipitation takes place after the gases and light fractions evaporate from the oil. This discovery apparently accounts for the heavy accumulation of paraffin in old fields.

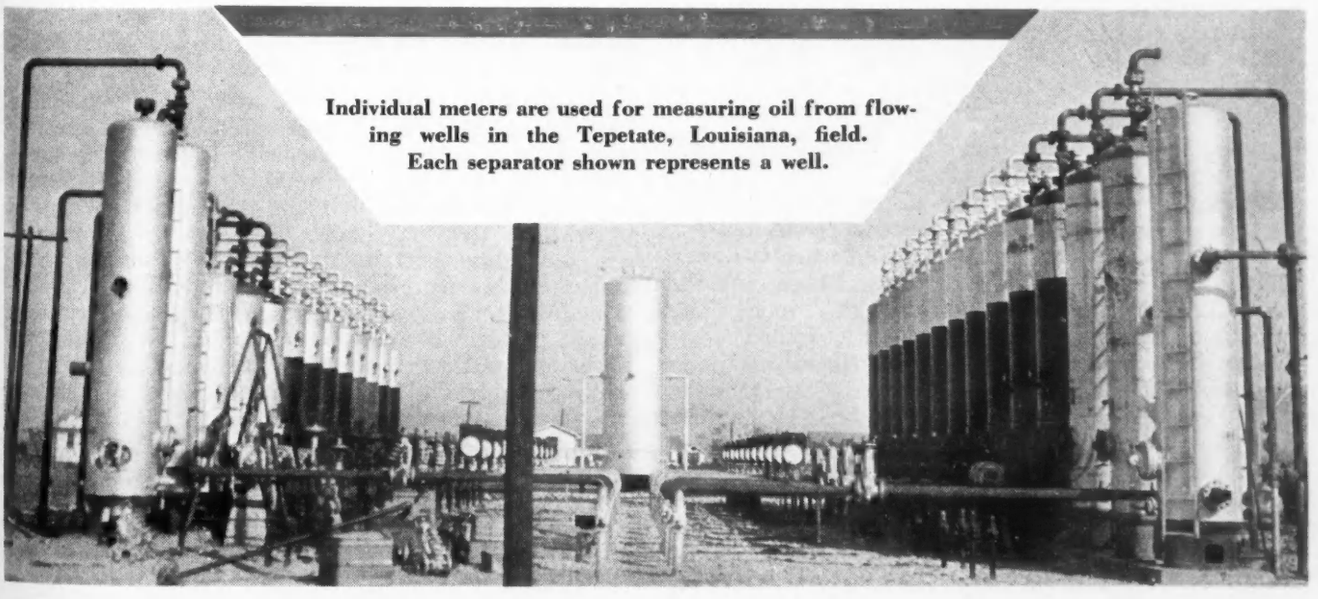
Paraffin solvents and mechanical devices have been used with about equal results in the major producing districts. Since the accumulation of paraffin is largely confined to the top of the hole, its removal is somewhat simplified. Small cable tools and cutters are run in the tubing in both pumping and flowing wells. It has been found more effective in the East Texas field to dump a small amount of chemicals daily into the tubing than to wait until paraffin accumulation has stopped or seriously retarded the flow of oil. Most of the solvents have an acid base, but such solvents as natural gasoline and cracked gas-oil are effective.

In the Van Fleck (Bay City), Texas, field, a new mechanical device has been tried with some success in the search for a paraffin remover. A special go-devil or "rabbit" was installed in the tubing, the device being free to move up and down. A brass ring was placed in the tubing near bottom of the paraffin level, and was caught by this ring when it sank to bottom. The scraper was built in the form of a tube and was slightly smaller than the nominal inside diameter of the tubing. On the top and bottom of the scraper were "pinion gear" type terminals that caused the device to turn when moving in the tubing. The scraper actually was designed to prevent accumulation of paraffin in the tubing. Rapid flowing of the well brings the scraper to the surface, a special connection or trap being provided for its removal and inspection. The scraper is provided with a ratchet-type pin that projects a few inches upward, making it possible to go into the hole with a small overshot and recover it when it sticks.

Special electric heaters have been used in the fight against paraffin, but they were not effective. It was possible to melt the paraffin in the hole with a low voltage current, but the chemical reaction caused the paraffin to harden after it was melted. The heat also "dried out" the paraffin.

Small cable tools equipped with knives in the form of a cross have been very effective in removing paraffin deposits. The wells are flowed during the running in operations, and the round trip requires only a short time.

The completion of high pressure, high gas/oil ratio wells along the Gulf Coast has necessitated a change



Individual meters are used for measuring oil from flowing wells in the Tepetate, Louisiana, field. Each separator shown represents a well.

in flowing practices. In the Old Ocean, Texas, field, a double choke arrangement has eliminated freezing by giving a graduated pressure drop to the well flow. The practice indicates that a third choke might prevent freezing in high gas/oil ratio wells that require heating facilities.

In the Oklahoma City field, a combination gas lift and pumping arrangement has been used to advantage where a larger production was required for a short period. The practice also holds possibilities for increasing production on a sustained basis. The fluid level had declined to a point that potentials were low under conventional pumping methods. The combination pumping and gas-lift arrangement consisted of using large capacity bottom-hole, electrically-driven pumps equipped with low-energy motors for lifting the oil to a height of about 1000 feet. The gas-lift phase then was employed for carrying the fluid the remaining 5000 feet to the surface. Wells that ordinarily would not produce more than 500 barrels daily on the pump showed potentials above 5000 barrels daily, and the lifting cost per barrel was considerably lower.

Oil produced in the Tepetate, Louisiana, field is being metered under high pressure, the central metering station having eliminated the necessity for individual well storage. A correction factor has been developed that gives a more accurate measurement than would be shown with a gauge pole. The metering under pressure utilizes the flowing energy of the wells, the flow continuing through a stabilization plant in the field. The smaller meters are checked by a master meter on the outgoing line.

Metering of flowing wells is gaining in California, and at Kettleman Hills the two principal operators depend largely upon meters for individual well measurement. A correction factor has been developed for the field.

Gas and air lift methods are gaining favor in the semi-flush fields that show a large number of weak flowing wells. Many of these producers are too weak to flow satisfactorily and too lively to place on the pump. A form of gas lift usually meets requirements. The Oklahoma City, Kettleman Hills and East Texas fields are examples of areas that produce to advantage on gas lift. Many wells need only a little aid and will flow when helped with gas lift. Some wells of this type also flow satisfactorily when agitated with the pump. Gas and air lift methods have been improved to give a greater efficiency than was shown by the original installations. It now is possible to utilize a larger part of the formation energy in the production of oil by this method.

Pumping Practices

A large California producer studied the operating charts of a group of pumping wells that were equipped with insert type pumps of various sizes. The smaller diameter showed to advantage, and the size of a large number of pumps was reduced. The number of strokes per minute also was reduced, but production over a period of several months actually increased. In many cases, the size of the pumps was reduced from 2¼ to 1 1/16 inches. In connection with this corrective campaign, the peak load was reduced from 12,500 pounds to 5800 pounds. The down time was reduced to a minimum, yet the smaller pumps and reduced pumping speed were able to give the allowable production in less than 24 hours.

This company also developed additional production practices that gave good results. After a sucker rod string has had hard usage in deep pumping wells, it is placed in service in lighter wells, and usually continues to give uninterrupted service under more favorable conditions. The company attempts to use surface equipment that best suits a condition, and carefully studies the length and number of strokes that give the shortest down time.

Back-side crank pumping has become a popular practice in several fields, this arrangement making it possible to pump from two to four wells with one power unit. The balancing of one well against another holds the power requirements down to a minimum and generally reduces production costs. This type of pumping is not suitable for very heavy wells in deep producing districts, but in the shallower producing areas with a high fluid level it offers several advantages.

Slow pumping has not become as popular in Mid-Continent, Eastern and Gulf Coast fields as in California, but several major operators are studying its advantages over fast pumping operations. Theoretically, the slowest pumping stroke that will give the well allowable or well production in 24 hours is the one to use, but other factors must be considered. Electric motors as small as 1½ horsepower have been used for pumping shallow wells at two strokes per minute. The gear reduction obviously reduces the power requirements. Slow pumping reduces wear on equipment, and in one field rod trouble has been eliminated by the practice. Due to fluid slippage and other troubles, slow pumping has not become popular in many fields producing light oils.

A greater submergence of the pump has given good results in several fields, and the tendency toward "deeper" pumping has been pronounced during the past year.

Refinements in acidization have increased production in all of the lime belts. New processes have been developed to obtain a more effective reaction to the acid, and additional applications have widened the usefulness of this practice.

Several companies have virtually rehabilitated their leases in an effort to raise the producing efficiency of groups of wells showing a small net return. Concrete rig floors, new rod line swings, adjustment in rod line routes, installation of new and improved pumping jacks, and a better application of power have shown surprising results on old leases that needed attention.

Water control with air pressure has revived a number of small wells in Eastern fields. Air pressure was first applied about 1915 to drive oil through sands where the natural rock pressure was exhausted. It was eventually tried on wells that had been ruined by water. After they had been subjected to pressure for some time, certain of these wells were opened, and operators were surprised to find that they contained oil instead of water. It was discovered that water, because of its weight, invariably sought the lower levels and the more open channels in the sand, while the lighter oil was forced upward and sideways into the upper strata. It was assumed that if the water could be pushed back, the oil would creep in from the top and sides and thus fill the reservoir. Operators have been working with this theory in mind, and as much as 100 barrels daily volume is being depleted or drained entirely in most of the recorded cases.

Advancements in Gas-Lift Operations

By S. F. SHAW, Consulting Engineer,
San Antonio, Texas

ADVANCEMENT in gas-lift practice has not been one of steady progress. The use of this method has speeded up or slowed down, depending upon the relation between supply and demand for oil. For many years this method of lifting oil has been regarded as one primarily adapted for producing large quantities of oil or water, consequently when there was an oversupply of oil, air-gas lift methods were relegated to the background. It is only in recent years that the lifting of small quantities of liquid by this method has been regarded as advantageous and profitable. Perhaps the main reason for this view was the supposedly high cost that existed because of a lack of understanding as to improved methods that could be employed.

IN THE early days of Goose Creek, Humble, Powell, Spindletop and other fields where air-lift was employed, it was generally the practice to use steam-driven compressors. These compressors were supplied with steam from boilers in which oil from the wells was used as a fuel. When the consumption of fuel oil for this wasteful method became greater than the quantity lifted from the well, it was decided that the method was uneconomical.

In those early days, little consideration was given to casing and tubing sizes, or to the use of air-lift in such a way as to reduce the consumption of compressed air to a minimum. A tubing of the size that was available was run into the well, regardless of the proper diameter that should be employed for the conditions. If the well produced satisfactorily, it was a successful air-lift well; if it did not so produce, it was a failure, and that was the end of the matter. The reasons for success or failure were not studied analytically to determine whether it was possible to make improvements.

Attempts were started in California in 1925, or thereabouts, to improve the practice of lifting oil by air-gas lift, and were soon followed by similar attempts in Oklahoma and Kansas. In many ways, during the past few years, air-gas lift practice has been somewhat backward in Texas, but the spreading of this method in the East Texas field for use in small wells is promising to make up for past hesitancy.

Recycling of gas was probably initiated in California due to the high price received for the gasoline and the rather high gasoline content of the gas. The Jones process was patented in 1914 and was employed in California in a commercial way before it was used in Oklahoma, where it was afterward employed and found to be successful. Suits brought in this state for infringement were decided against the patentees.

In 1925-1926, gas-lift work was started in the Tonkawa field where success was achieved almost from the beginning. This work was followed by highly successful work in the Wewoka field, but this did not continue long, due largely to water encroachment in combination with the presence of hydrogen sulphide gas. In the latter part of 1926, the Seminole field came into prominence, and conditions here were such that the gas-lift received its most powerful stimulus, and production by this method mounted until the quantity so lifted reached a peak of perhaps 250,000 barrels per day. This huge production focused attention on the use of this method, and it was rapidly adopted in other fields, in some of which it was almost as rapidly abandoned due to adverse conditions.

Depression Brings Advancements

With the approach of the recent depression in 1930, the price of oil declined to a point where every effort was being made to reduce production in order to stabilize the price. At the same time very large fields had been, or were being opened up, where the oil would flow naturally under restricted practices, therefore, there was not much need for the use of gas-lift operations for supplying the oil necessary to satisfy the market requirements. The gas-lift method

TABLE 1

Approximate Quantity of Output Gas Required to Lift One Barrel of Oil When Flowing at Maximum Capacity

Barrels per Day, Maximum Capacity	Cubic Feet Required per Bbl.	
	Seminole	Oklahoma City
10,000	320	1,100
9,000	340	1,150
8,000	375	1,250
7,000	420	1,400
6,000	475	1,550
5,000	550	1,750
2,500	980	2,750
1,000	2,100	5,000
800	2,500	5,800
600	3,200	6,400
400	4,500	7,200
200	7,800	13,500
100	13,500	25,000

was still being employed in Seminole during this period of depression, but was gradually dwindling in importance, owing to water encroachment and to gradual depletion. At this time the method was being employed in the Arbuckle limestone area in the Oklahoma City field, but the flooding of these wells with large quantities of water soon put an end to gas-lift operations in the Arbuckle area.

Beginning with 1932, the Simpson area of the Oklahoma City field began to show signs of weakening on natural flow, and gas-lift operations were started and gradually assumed considerable importance. To this, was added the need for gas-lifting wells in the Wilcox zone in the same field, which practice increased in scope until in 1934-1935 a large percentage of the production from this prolific zone was being lifted by this method.

In California, Long Beach, Huntington Beach, Santa Fe Springs, Dominguez and other fields have contributed to knowledge in the various forms of gas-lift. Intermittent flow in small wells was started early in some of these fields. Seminole contributed immeasurably to the advancement of gas-lift operations in the use of continuous and intermittent flow methods, in the study of proper sizes of casing and tubing advisable to employ, and in a better understanding of the quantities of gas required to carry on the operation. Betterments were also made in the adaption of machinery for gas-lift practices and in the extraction of natural gasoline in combination with gas-lift methods.

Different Phases of Gas-Lift Advancement

Advancement in gas-lift operations has been made along several different lines, among which the following may be mentioned:

1. Advanced knowledge in the use of the gas-lift.

2. Better methods have been worked out, including the use of the proper sizes of casing and tubing.

3. Greatly improved machinery has been designed and supplied by the manufacturers, leading to greater lifting capacity and to greatly reduced lifting costs.

4. Better co-ordination has been attained in the application of the improved machinery to the lifting operation.

Advanced knowledge in the application of the gas-lift has taken the form of studying the quantities of gas required for lifting oil under different conditions of depth, through different sizes of pipe, and for the lifting of different kinds of oil. It has also led to a study of the factors that influence the flow of oil into the well, when lifting it at different rates of production.

Table 1 states the approximate quantity of output gas per barrel required when a well is producing at maximum capacity in the Seminole and Oklahoma City pools. This table brings out the large differences in gas required to lift a barrel of oil in fields of different depths.

The capacities of pipes of different diameters in wells of different depths are quite different as indicated in Table No. 2.

It has been developed that tight sands and heavy oils do not allow the oil to flow into the well under a given differential pressure between the reservoir and the well as freely as when the sand is quite permeable, and the oil is of high gravity. For instance, a 10-pound differential has been found sufficient for 2000 barrels to flow into a well in the Oklahoma City Wilcox sand, while a 1000-pound differential in a tight area of the Turner Valley field, Canada, allowed only about 250 barrels per day to enter the well. A case has been observed in the Keokuk Falls field, Oklahoma, where a differential of approximately 1350 pounds permitted 220 barrels to flow into the well.

Considerable betterments have been made during the past ten years in the methods of using straight gas-lift, intermittent flow, and combination methods. Sizes of flow pipes have been worked out in a few fields for the quantity to be lifted. Sizes of tubing have been studied with reference to reduction of friction loss in injecting the gas through the tubing to the bottom of the well, and in providing the most efficient annular area between the tubing and the casing. When flowed through the tubing, studies of the sizes of tubing have been made with reference to obtaining the best rate of flow with the minimum consumption of gas.

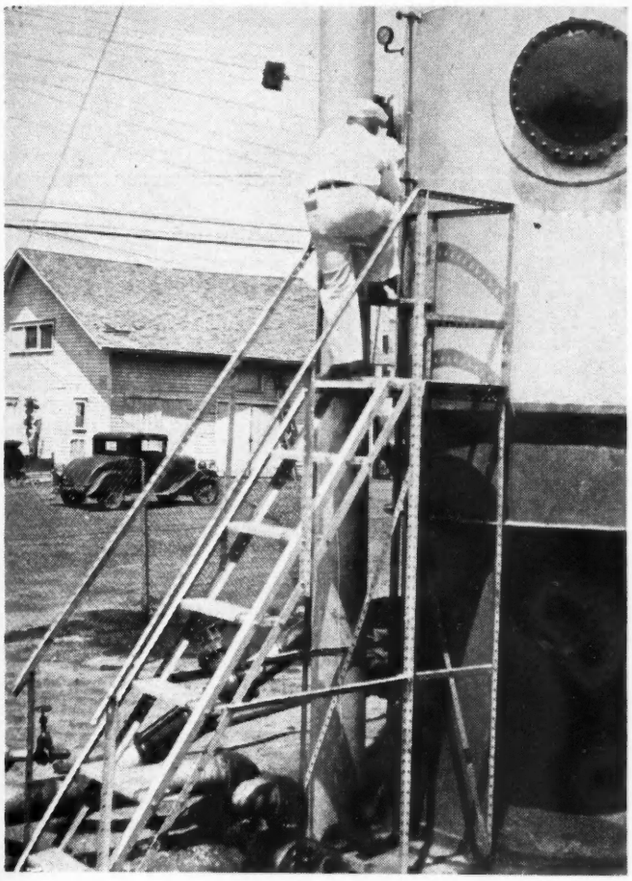
A study was made of capacities of various sizes of pipes in the Seminole field[1], and a similar study is now being made in the Oklahoma City field.

The use of chokes in casing and tubing has been made in many oil fields, particularly in fields where wells have been completed during the past five years. When it is necessary to restrict production, it becomes desirable to determine the best rate at which to flow the well in order to make the allowables, and this has contributed greatly to a better understanding of the effects of choking the wells to different rates of flow. Many forms of intermittent flow have been tried out during the past ten years. In Semi-

TABLE 2

Approximate Maximum Capacity in Barrels Per Day of Pipes of Different Diameters in the Seminole and Oklahoma City Fields Under Different Bottom-Hole Pressures

	Barrels per Day Under Bottom-Hole Flowing Pressure, Lbs. per Sq. In.				
	500	400	300	200	100
8⅝" O.D. Casing, 3" Tubing:					
Seminole	22,500	16,000	10,000	5,200	1,650
Oklahoma City	10,500	7,200	4,500	1,500	780
7" O.D. Casing, 2½" Tubing:					
Seminole	13,500	9,200	5,500	2,650	750
Oklahoma City	5,500	3,500	2,000	900	230
4" Tubing:					
Seminole	14,500	9,000	5,000	2,500	580
Oklahoma City	3,300	2,150	1,250	550	150
3" Tubing:					
Seminole	4,250	2,600	1,400	600	135
Oklahoma City	1,950	1,200	650	275	65



Testing a gas lift well at Oklahoma City.

nole, the chamber method was quite popular, the input gas being controlled by intermitters situated at central positions to several wells, and by intermitters set up at each individual well.

In Oklahoma City, various forms of intermittent controllers have been used, the time-cycle intermitter at each well probably having the preference. The packer-type of intermitter, with flow through casing, was quite popular in the Oklahoma City field at one time. In certain types of wells, notably those with high differential pressures, the plunger-lift has been found to be quite effective, handling the production at maximum capacity with low quantity of input gas, and at low cost.

Combination methods have been in use for several years. The sucker-rod gas-lift type was employed in Seminole, but did not give good results. The piston pump actuated by compressed gas in combination with gas-lift has been tried in the Oklahoma City field, but has not made much headway, as yet. The hydraulic piston pump combined with gas-lift is now being tried out in the Oklahoma City field, and some degree of success is said to have been attained. The submerged electrical centrifugal pump combined with gas-lift has met with astounding success in the Oklahoma City field, and where conditions are favorable for its use, has been shown to have a capacity ranging from two to five times as great as that of straight gas-lift. However, excessive quantities of gas and large quantities of loose sand are serious impediments to the use of the centrifugal pump combined with gas-lift.

Improvements in design of machinery and in the strength of the material used in the manufacture of machinery has added greatly to the facility with which gas-lift operations can be conducted. The long rows of boilers which were employed for furnishing steam to operate compressors in the Powell and Wortham fields, Texas, and which were a familiar sight in early days, have disappeared. These steam compressors were followed by electric-driven compressors which gave excellent service in compressing gas, and were less expensive to install, but toward the end of a gas-lift campaign, when production had declined to a low point, were found to make for high operating costs per barrel lifted. At one time belt-driven machinery was in common use, and has the advantage that the power unit can be used for other purposes than for driving compressors.

In recent years, the cost of installing the gas-engine direct-driven compressor has become low, and the use of free gas as fuel from the lease has resulted in low operating cost, consequently this type of compressor for the time being, at least, has largely displaced other types of compressors.

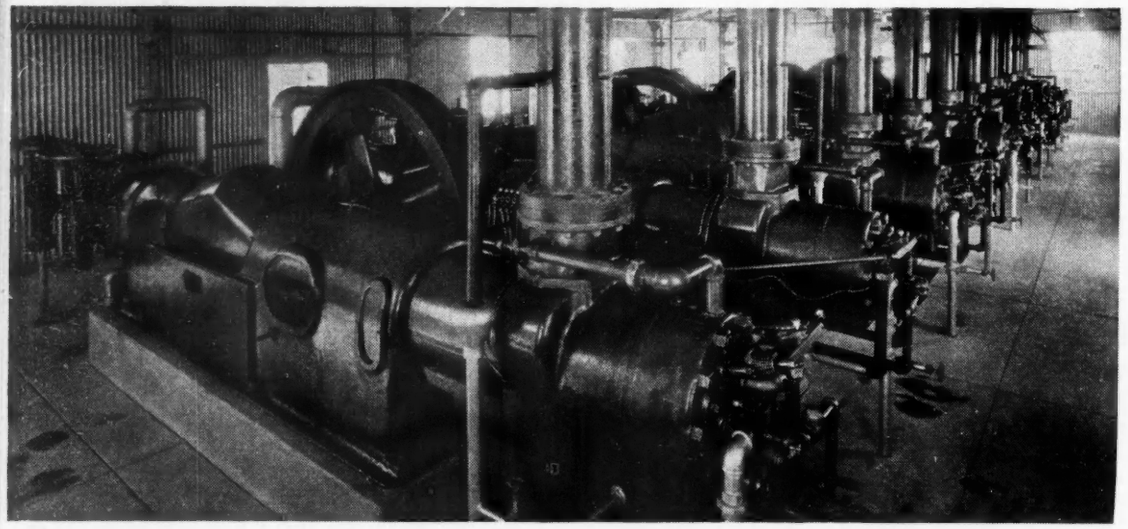
Compressors are made in large or small units, and are so designed that high or low pressures can be handled. The addition of valve lifters and clearance pockets to compressors has been of benefit in permitting advantage to be taken of the energy stored in high-intake pressures under variable discharge pressures, as well as enabling the compressor unit to increase the volume handled without overloading the power cylinder.

The manufacture of dependable high-pressure valves and pipe and pipe-fittings has been of great advantage in allowing the operator to use high-pressure gas, and this has proven of much assistance in handling gas-lift operations in some deep fields, especially where high starting pressures are required.

The use of "starting" or "kick-off" valves has proven a benefit in several fields where it was the practice to shut down wells after having completed their allowables for the day or month and which would not resume natural flow when opened again. They have been of value where it was desired to avoid starting with high pressures in gas-lift operations. It has also been found that plain "booster" holes drilled through the collars are of advantage in meeting high pressures. The sizes of such holes require careful study to insure the passage of sufficient gas to accomplish the purpose and at the same time not be wasteful of gas. These booster holes are probably more wasteful of gas, however, than where the automatic starting valves are employed.

Scarcely does any requirement arise for machinery or for other gas-lift appliances, before the manufacturers are ready with designs to take care of the situation.

Better co-ordination in design, installation, and operation of gas-lift plants, and the operation of the wells has been achieved, but there remains much to be done along this line. Plant operations cannot be divorced from well operation with any expectation of obtaining best results. It would seem as if the petroleum engineer must learn not only the difference between the power and compressor ends of the compressor unit, in order to understand how the operation of the plant may affect the operation of the well, but must become fairly well acquainted



Section of a 5300-horsepower gas-lift plant in the Oklahoma City field.

with the functions of the compressor, its design to meet certain well requirements, and its installation and operation so that maximum economies may be obtained. In many ways it has seemed to the writer that less progress has been made along the line of co-ordinating these two phases of gas-lift operation than in any other part of the operation.

The future conditions at the wells must be reasonably anticipated and conditions as to intake pressures and discharge pressures must be foreseen, if the compressor plant is to handle the work successfully. Pipe lines should be of the proper size to convey the gas with minimum loss in pressure to the wells. Tubing should be of the most convenient size to permit a heavy load of gas to be injected into the well without setting up excessive loss in pressure. The casing of the well must be of the best size to allow the maximum production to be lifted, and at the same time allow the best size of tubing to be run inside the casing.

Arrangements as to situation of separators are important in order that excessive back-pressures may not be imposed on the well, in its later life when the formation pressure has declined to a low point. The discharge pipe between the well and the separator must be of the proper size to carry the load of oil and gas without setting up high back pressures, and there should be eliminated so far as possible the many angular turns in the discharge pipe in order to reduce frictional losses. All these matters must be anticipated, in order that the well may produce to best advantage, and in order that there may be required the minimum amount of gas from the plant to carry on the operation.

Coordination between plant and well operation is evident in the East Texas field. This field is prorated to a daily well production of little more than 20 barrels per day per well, and yet possibly as many, or even more, wells have now been connected up for gas-lift operation than was ever the case in the Seminole field. The cost of equipping and operating under these conditions is probably much less than that for any other method, particularly where the residue gas from the gasoline plants can be piped directly to the well, and the oil produced with almost no additional cost.

When wells producing large quantities of oil on straight gas-lift decline to the status of small producers, it has become possible to move most of the compressor plant to another site and use a fraction of the former plant for operating the plunger-lift on these small wells, where conditions are favorable for its use. The plant operator is able to attend to both the well operation and the plant operation, thus coordinating both operations and reducing expense to a point where it is possible to continue to make a profit. Work of this character has been carried on in the Oklahoma City field, and is starting in a neighboring area.

The benefit of coordinating plant and gas-lift operations has been evident in the results of a large group of leases of a company in a field in which the production of oil from the wells of those leases exceeded the production of offsetting wells on adjacent leases by some 11,000,000 barrels. In the light of later experience it becomes evident that even these results would be subject to improvement.

Studies have been made, and continue being made, on all of the points enumerated in the foregoing article. Nevertheless, there is need for greater studies along the same line, some of which will be mentioned.

Much interest has attached to the work done by Ben E. Lindsly of the Bureau of Mines in determining the quantity of gas actually contained in the oil in a reservoir when a field is first opened, and in the character of the gas, and the energy stored in the gas.[2] It would be very important to have these analyses made at intervals throughout the life of the field, perhaps at intervals of 200 to 500 pounds decline in reservoir pressure. The relative percentages of the gas become changed as the wells decline,[3] and it would be well to study the effect of these changes on the operation of the wells.

There is need for the study of actual gas factors obtained in the lifting of different kinds of oils, and under different conditions of lift, of pressure, and of sizes of pipe. The writer has done considerable work along these lines in several fields, but the conditions vary so greatly in different fields that he has been able to obtain definitely dependable results in only four or five of these fields where the operations could be followed over a period of several years. He can foretell approximate results as to gas factors in most fields, but cannot state exactly what these factors will be in any other field than those already studied. One illustration indicating the differences existing between different fields is seen in the comparisons given in Tables 1 and 2, of this article.

[1]S. F. Shaw. Comparative Data on Bottom-Hole Pressures and Diameter of Flow Strings in Seminole Pool. Oil & Gas Journal, June 8, 1933, p. 20.

[3]S. F. Shaw. When Will East Texas Wells Stop Flowing. Oil Weekly, December 19, 1932. p. 33.

[2]Ben E. Lindsly. A Bureau of Mines Study of a "Bottom-Hole" Sample from the Crescent Pool, Oklahoma. Petroleum Engineer, February, 1936, p. 34.

Care and Repair of Deep Well Pumps

By DONALD E. SCHNOBRICH*

New processes for maintenance and repair are providing increases in production and efficiency of operation as high as 50 percent.

OF THE many and diverse problems common with lifting fluid from depths of 4500 feet or more the proposition of obtaining maximum efficiency from subterranean pumping equipment is one that has been under serious consideration recently by production executives. The importance of continuous operation with a minimum of trouble and expense always has been the goal of the field man, but it was not until the recent development of several new maintenance and operating processes and methods that any appreciable progress toward this event was realized.

Contrary to the haphazard attempts in the past, production executives are earnestly striving today toward a more complete understanding of their complex deep well pumping equipment. The knowledge it is realized is essential not only in increasing operation efficiency, but in being able to intelligently diagnose, prescribe, and operate the proper equipment for the individual or abnormal condition.

It was as a direct outcome of the research efforts made by the field men and technical advisors, that several new processes for maintenance and operation of expensive equipment were originated. That these new methods were practical was borne out by their rapid acceptance in deep areas. That the processes were successful is shown in cases where accurate observation and recording was maintained; increases in production and efficiency of operation, over a period of time, was found to be as high as 50 percent.

Rod Type Deep Well Pump

Unlike shallow production, in which the fluid is lifted by a wide variety of pump equipment; such as the Parker type plunger-liner pump, the common barrel, friction fit valves, tubular pumps, pack valves, etc., deep production depends in 97 percent of the cases upon one individual type of pump; commonly termed as the "Insert Liner" or "Rod Type."

The reason for this strict adherence to one particular design of pump is understood when it is explained that the rod type is constructed so that the entire pumping assembly (liners, plunger, jacket, collars, valves, etc.) may be removed or inserted by the sucker rods alone. The fact that the rod type does not depend upon stationary anchorage to the tubing renders it ideally suitable for deep wells, in which the expense of tubing "round trips" is of serious importance.

Manufactured by a number of concerns throughout the country, all rod type pumps follow certain basic working principles; compact, elongated construction which permits ready passage through the tubing string, and certain anchorage assemblies—all which are so constructed as to permit locking or disengaging by manipul tion of the rods. It is necessary to discuss its parts to describe later how new maintenance processes have improved operating efficiency.

Anchorage of the pump proper is accomplished through the use of an outer jacket which contains, for the purpose of providing a double seal, a seating tube and lock barrel. The seating tube, it will be noted, is equipped with threads for screwing to jacket and tubing. Internally, the seating surfaces are machined smoothly and polished to provide perfect grips for the swelled cups.

At the bottom a lock barrel attachment is fitted

*Mid-Continent Pump Supply Company.
[1] Fifth of a series of "Equipment Care" articles.

which is so constructed on the inside as to form a trap fit for the lock mandrel. Anchorage is accomplished by forcing the lock mandrel past the sleeve until, finally, it snaps securely into the enlarged lower section of the lock barrel.

With the lock mandrel trapped properly in the barrel, the sleeve obtains a seal in its corresponding seat in the barrel. Both seat and sleeve are ground and lapped to maintain definite tapers,—usually of nine or fifteen degrees in Mid-Continent areas.

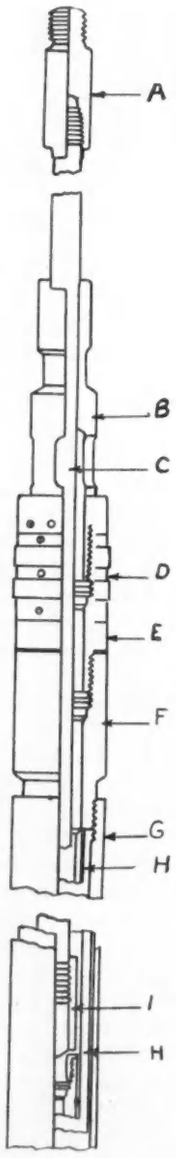
All makes and manufacturers, with little variation, follow this anchorage principle. Some cases operate successfully without the lower lock assembly, depending entirely upon the cupped sealing head, but in the majority of instances both seals are used.

Ordinary plunger stroke is allowed inside the liners without detaching either seal. When the necessity arises, however, for complete removal of the pump, the rods are lifted beyond the stroking limit, thereby disengaging both sealing head and lower lock assembly; allowing the pump proper to be pulled up through the outer jacket and tubing string.

Previous to the recently introduced servicing processes, it was the general practice to purchase a complete new pump and operate it in the hole until worn past the stage of making reasonable production or until working mechanisms became fouled with sand, gyp, paraffin or similar foreign materials. When this occurred it was usually the practice to remove the pump and fit it completely with new parts which, in most cases, amounted to practically the original purchase price.

FIGURE 1

The top section of a deep well rod type insert pump is shown in the drawing on the left, while the bottom section is represented by the drawing on the right.



Parts Identification

A—Sub Coupling. Manufactured from steel and threaded both internally and externally to screw to sucker rods and pump pull rod.

B—Top Support Body. Manufactured from heat treated, specially hardened steel with three or more wing openings for fluid passage.

C—Pull Rod. Made of steel or treated iron. Solid, and threaded externally to screw to plunger top cage.

D—Support Body, Rings, and Cups. Body and rings are of heat treated steel, provided with holes for sand exit. Cups are of special fibre or malleable metal.

E—Support Adapter. Manufactured from steel and serves as a lock to hold cups in properly swelled position.

F—Insert Type Collars. Made of specially treated steel and screw internally into liner jacket. Collars have a finely machined external facing which fit flush to the two end liners.

G—Liner Jacket. Insert type and of annealed cold drawn tubing. Threaded absolutely concentric with bore. Reamed to within five thousandths of an inch internally. Varies in length from ten to twenty feet.

H—Liners. Vary in number according to length of pump. Usually of twelve-inch length. Manufactured with painstaking care of specially treated cast or alloy. Machined to within one thousandth of an inch internally.

I—Plunger Top Cage. Somewhat similar to top support body in construction and operation. Screws to plunger and pump pull rod.

J—Plunger. Manufactured of cold drawn tubing. Usually chrome plated and grooved. Threaded internally at both ends and ground to a high degree of accuracy. Available in several different lengths and outside diameters.

K—Valve Blind Cages. Combination of which in this case is termed as Traveling Valve. Cages are fitted with inserted and heat treated ball guides of special steel. Two complete valves are used to insure perfect action.

L—Seats and Balls. Made of rustless, seamless steel. Seats are usually of flat type, designed to eliminate distortion and are of a high grade stainless and acid resisting metal. Balls have highly polished surfaces and are manufactured especially to resist corrosion.

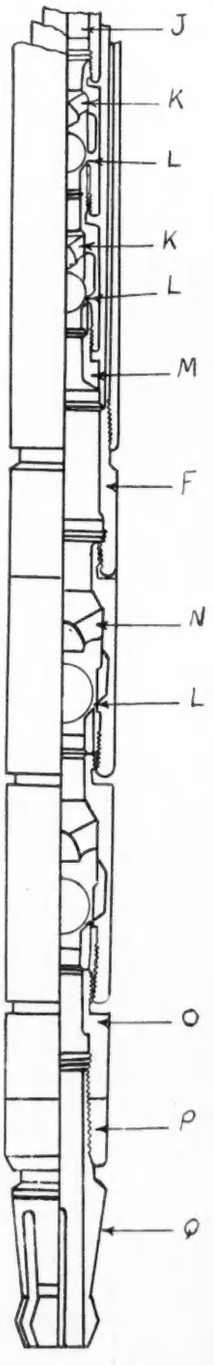
M—Seat Lock Nut. Threaded to screw into bottom blind cage securing ball and seat.

N—Valve Blind Cages. Combination of which in this case is termed as Standing Valve. Threaded to screw to bottom collar. Contain balls and seats, and construction practically identical to traveling valve although all-around dimensions are somewhat larger.

O—Lock Adapter. Threaded internally and externally to receive lock sleeve and bottom blind cage of standing valve.

P—Lock Sleeve. Manufactured of specially treated steel and provided with a tapered sleeve which is machined and lapped to a definite angle.

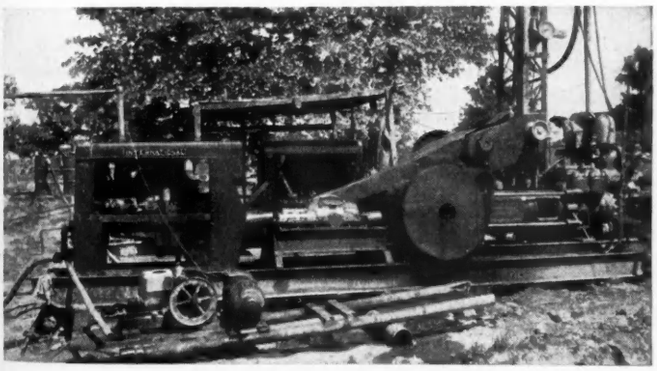
Q—Lock Mandrel. Made of heat treated spring steel with resilient prongs that obtain anchorage by spreading in lock barrel.



When RESULTS *are Needed* *Specify—* INTERNATIONAL POWER

Two of the 12 International TracTracTors which worked on three major natural gas lines laid in the territory west of the Genesee Valley in New York. These lines originated near Genesee in the northern Pennsylvania fields and one ran as far as Rochester, N. Y. This shows two of the 10 Model TA-40 TracTracTors laying pipe. There were also two Model T-20 TracTracTors on the job.

An International TD-40 Diesel TracTracTor equipped with bulldozer owned by H. B. Bullington, Lyons, Kansas, digging slush pits in the Silica field near Ellinwood, Kansas. This outfit rips and moves 300 yards of dirt in 8 hours, using 2½ gallons of 7-cent Diesel fuel an hour.



Two of the three International PA-100 Power Units used by the Moday Drilling Co., Duncan, Okla. The engine in the foreground drives the slush pump and the other two power the drill. International Power Units are especially flexible for portable rigs and they make a great saving in time and water.

LET this sound advice from *experienced* users direct your purchases of industrial tractors and power units. Cash in on the advantages INTERNATIONAL *Performance* and INTERNATIONAL *Economy* bring to the job—advantages that make you feel mighty good when the cost sheets are figured.

International Industrial Power has a reputation for getting things done fast . . . that's why you find the *big* jobs being turned over to International. And when service is needed, the low maintenance cost of each unit in the International line means amazing savings. Wheel and crawler tractors (gasoline and Diesel) for mobile power, and power units (gasoline, natural gas, and Diesel) ranging up to 110 max. h. p. for stationary work are available. See the nearby International industrial dealer or Company-owned branch for complete information.

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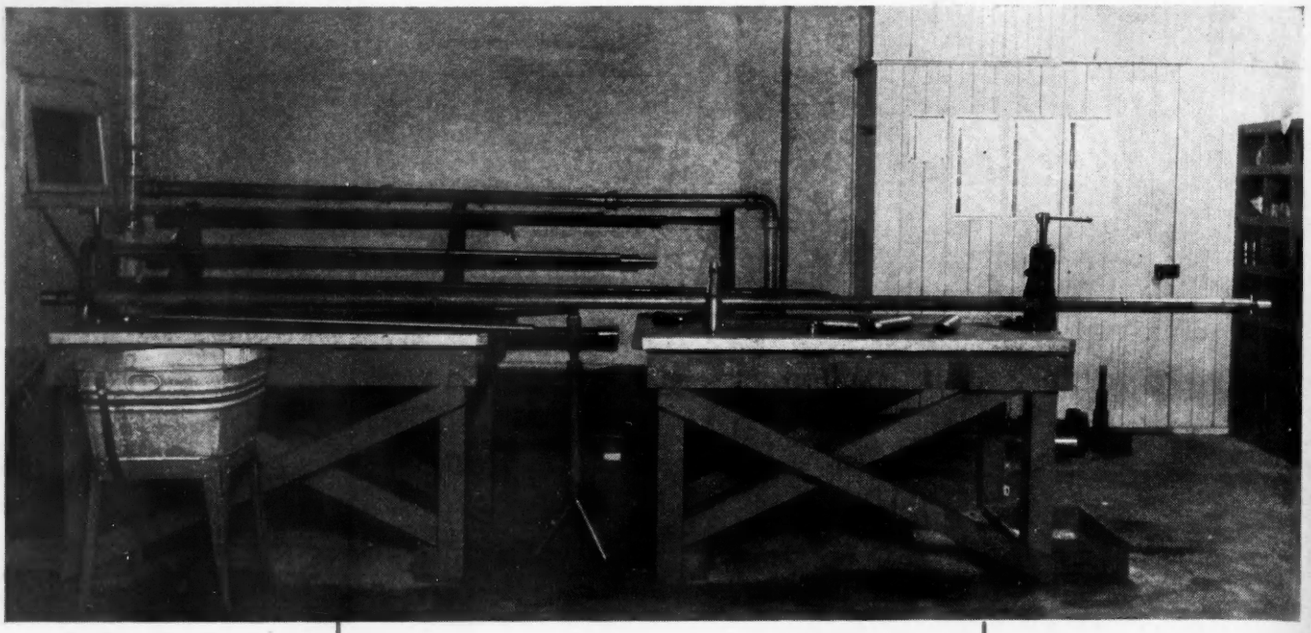


FIGURE 2

A typical servicing shop with rod type traveling barrel deep well pump in the vices. The tub is used for cleaning purposes.

With the new servicing processes, however, a radically different procedure is maintained. The pump is no longer allowed to operate until, due to wear, a serious drop in production necessitates new equipment. Close observation of the well's regular production is maintained and when an appreciable drop from maximum is observed, the pump is removed and subjected to the procedures described in the following discussion.

New Servicing Processes

Taken to the servicing shops, the pump is hoisted into vices, pull rod drawn from the interior, all external surfaces and parts scraped of oil, mud, paraffin, etc., and finally thoroughly cleaned with a kerosene bath. All parts of the lock mandrel assembly are removed, as is the head and cup assembly. See Figure 2. Collars are then detached, allowing the plunger to be drawn from the liners thereby exposing the top cage into which the pull rod is secured. The pull rod is removed and, finally, all parts removed but the liners.

A specially constructed case, divided into as many sections as there are liners in the pump, is used for holding the liners as they are removed from the jacket. See Figure 3. Each individual section of the case is numbered to identify the respective position the liner occupied while in use. Collars detached, the liners are removed and the jacket cleaned and polished internally.

Rigid inspection of the bottom standing valve with a thorough cleaning of the blind cages for foreign materials such as swab rubbers, sand, gyp, etc., is first instigated. If the balls are pitted, as is usually the case, they are replaced with new. Seats are treated to hand grinding process which, if not too badly scored, usually returns them to satisfactory condition. Lubricated with rust resistant oil and all joints sealed with white lead, the balls and seats are replaced and parts made up.

In servicing the lock assembly, it is usually necessary to replace the lock sleeve with new. A sleeve is seldom utilized more than once unless grinding and lapping returns it to a satisfactory condition. A rigid inspection of sleeve, mandrel, and adapter (if used) is maintained before assembling.

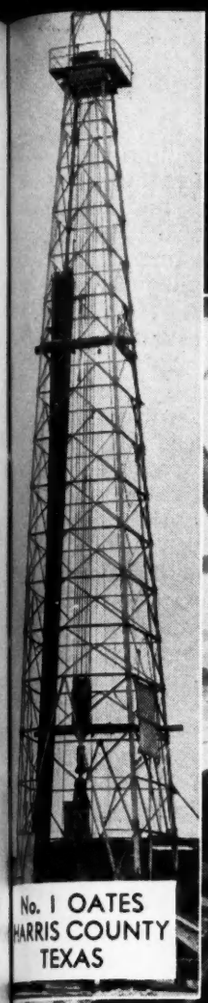
In overhauling the head with its attached cups, the procedure is somewhat simple. Winged openings and sand exits are cleaned and the former inspected for wear and distortion. New cups of specified sizes and dimensions are installed although left unswelled until the final assembling.

Much the same process that was applied to the standing valve is used in conditioning the traveling valve. Both blind cages are disengaged, balls and seats removed and inspected, both cages cleaned and foreign substances removed, and all joints made up with white lead. The inside of the plunger is swabbed and cleaned together with the fluid passages of the top cage. A micrometer inspection is usually introduced and the exact plunger wear recorded and compared with that of the liners. It has been found that in extreme sand or abrasive conditions, the chrome plating of the plunger will be ground off or badly scored. This situation can be remedied, at times, by reversing the plunger end for end, thereby obtaining a closer top seal.

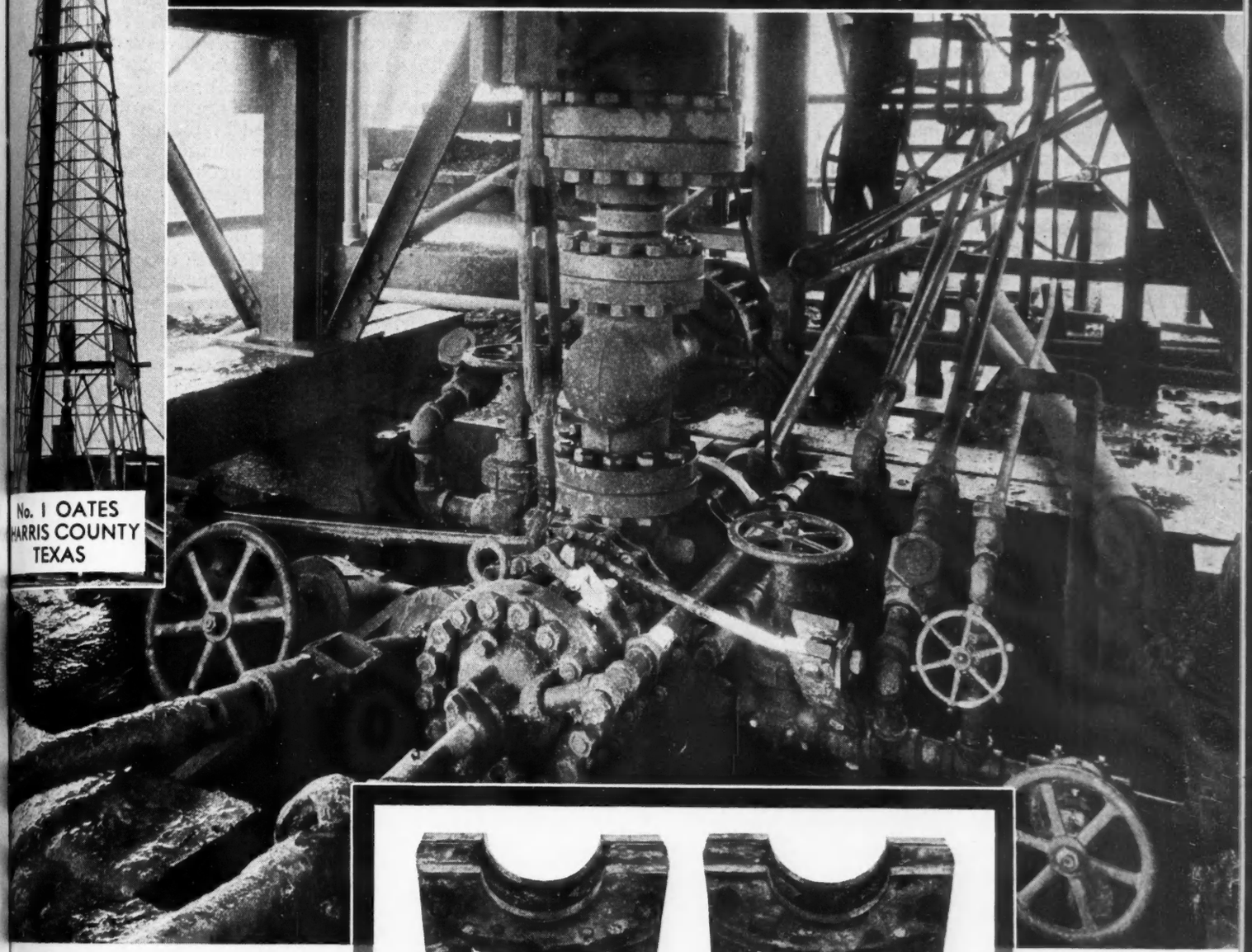
New Liner Servicing

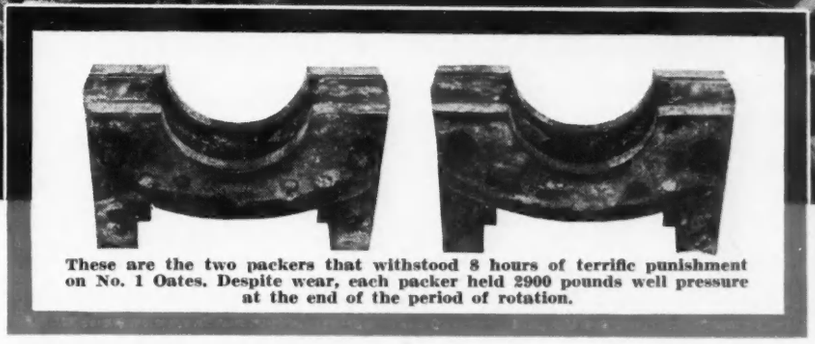
Undoubtedly the most contributing factor toward the success of the efficiency servicing processes is in the procedure affecting the liners. As stated before, the liners are removed from the jacket and placed in a numbered case signifying the exact position they were found in the pump. Following this, they are cleaned of all oil and paraffin by a kerosene bath. Next, sand is removed by a water wash and finally, if

3½" OD DRILL PIPE ROTATED EIGHT HOURS UNDER PRESSURES AS HIGH AS 2900 POUNDS THROUGH CAMERON 7" TYPE SDA PREVENTER



No. 1 OATES
HARRIS COUNTY
TEXAS





These are the two packers that withstood 8 hours of terrific punishment on No. 1 Oates. Despite wear, each packer held 2900 pounds well pressure at the end of the period of rotation.

CONVINCING evidence of the ability of Cameron Self-feeding Ram Packing Elements to absorb terrific punishment due to movement of drill pipe through the closed rams was provided recently on No. 1 Oates, Harris County, Texas.

At approximately 8700 feet, abnormal bottom hole pressures, estimated to be more than 7000 pounds, developed in the 700 feet of open hole below the 8000-foot oil string. Circulating fluid weighing 17½ pounds proved barely sufficient to hold well pressure when in good condition, and insufficient when cut by salt water which intruded.

In an effort to prevent sticking the 3½" O.D. drill stem, pipe was rotated continuously through the closed rams of the 7"-5000 pounds test Cameron Pressure Operated Blowout Preventer for a period of eight hours. For six hours, 400 pounds fluid closing pressure was maintained behind the rams of the Cameron Type SDA Preventer. As surface pressure continued to build up, once as high as 2900 pounds, it was necessary, during the last two hours, to apply 800 pounds fluid closing pressure.

Inasmuch as there was no means of repacking the one Cameron Type SDA Preventer on the well, it was deemed inadvisable to continue pipe rotation after eight hours. As shown above by the unretouched photograph of the two worn Cameron Self-feeding Ram Packing Elements, which held perfectly at the end of the period, the resilient packing in these elements positively does feed out as required. Further, their capacity to withstand the wear and tear imposed by eight hours of pipe rotation under pressure clearly reveals why they effect an immediate and positive seal when closed under normal conditions.

Operators interested in obtaining the most dependable control equipment possible should, by all means, give full consideration to the correct type of Cameron control unit or hook-up to meet their requirements.

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EXPORT OFFICE: 74 Trinity Place, New York, N. Y.
MIDLAND: W. P. (Red) Knight
CORPUS CHRISTI: J. M. (Red) Teague
LOUISIANA: Pelican Well Tool & Supply Company
OKLAHOMA and KANSAS: Carson Machine & Supply Co.
MEXICO: J. W. Allen, Apdo. 542, Tampico, Tamps.

gyp or corrosion is present, the liners immersed in muriatic acid. After drying, the polishing process is introduced to further remove any foreign substances and also to condition the liner's internal, surfaces so that an accurate gauging for wear may be made.

The polishing operation is usually done with the aid of a simple motor-driven machine. See Figure 3. A shaft, fitted with slots for holding emery paper, is belt driven by the motor. The liners, one by one are held on the shaft annd turning at a high rate of speed are polished internally and externally. Facings on either collar are also reconditioned in this manner.

Once cleaned and polished, the liners are then gauged for wear. A dial gauge, recording to within one-half of one thousandth, is inserted in the liner and manipulated until an accurate reading for wear is obtained. Inasmuch as the liners are kept in the exact position that they were removed from the jacket, it can readilly be found just what section of the pump is being subjected to the most wear and ofttimes corrective measures introduced to remedy stroke, thrust, etc.

After each liner is gauged and innspected for breaks or cracks, they are oiled and re-inserted into the jacket *according to a very definite order*:

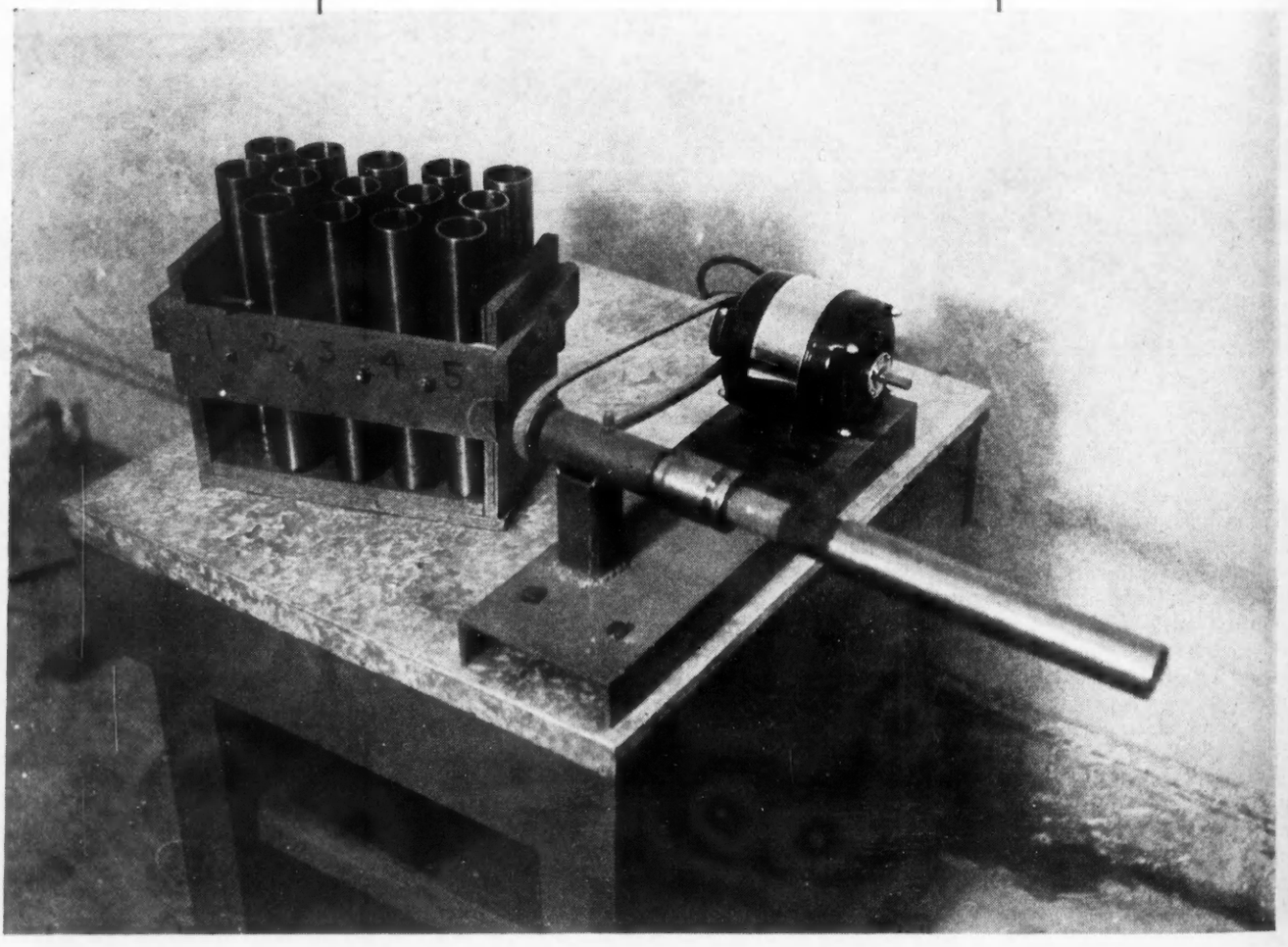
This order of replacement is governed by the individual wear of each liner. In a 15-foot pump, for example, a plunger stroke of only 60 inches may be used and, consequently, the balance of the liners not directly in the stroking range will show a definite difference in wear in comparison to those liners having been continuously in contact with the moving plunger.

The liners gauged, and their individual wear known, those that reveal the *least* amount of wear are replaced in the jacket so that this time they are directly in the stroking area. Those liners showing the *most* amount of wear are placed at the ends of the pump where, in most cases, the plunger stroke does not extend. Through this rearrangement the plunger is allowed a new maximum tight fit without the replacement of new liners.

If the wear extends beyond a reasonable degree in the majority of liners, the situation can often be remedied by the use of a larger size plunger. Thus, if the starting size plunger in the new pump was a Minus Three (1.747), allowing a clearance of three thousandths, the plunger used in the pump after the liners have been rearranged several times is changed to a Minus One (1.749) or two; thereby taking up the one or two thousandths caused by wear. Although the larger size plunger is successful in taking up the wear clearance to a certain extent, the practice is not pushed too far. If any liner, regardless of plunger

FIGURE 3

Machine used for conditioning liners. The number case holds the liners when removed from the pump.



Where well loads approach capacity, unit pumpers get their real test. Under such conditions, the factors of safety built into every part of National Unit Pumpers insure their dependability.

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size, shows a wear past four thousandths it is usually replaced with new.

The process of aligning the new or rearranged liners in the jacket is one that requires trained skill and special equipment. Lining mandrels, machined to within one-half thousandths of an inch and usually 10 feet long, are inserted in the liners after they have been placed in the jacket and held loosely by the collars. With the mandrels exactly spaced, the collars are made up flush. The knack of applying just the correct amount of tension to the collars in order to hold the liners in line and yet prevent galling of the faces is one that is acquired only through training. Under no circumstances is this work attempted in the field. It has been the practice in the past, as an emergency operation, to attempt to align the liners with the plunger. This is a virtual impossibility and often results in serious damage to well and pumping equipment.

Parts, plunger, liners, and fittings overhauled, the pump is assembled in the following manner: the head, complete with new cups, is slipped over the pull rod which is made up to the plunger top cage. Pull rod and plunger are inserted into the liners and head made up to the top collar, properly swelling the cups at the same time. Finally, the lower lock assembly is made up to the bottom collar with all joints white leaded.

The seemingly insignificant operation of filing the assembled pump complete with all its fittings is actually of major importance. If the burrs, grooves, and ragged protrusions left by the wrenches were allowed to remain on the pump, serious damage would be done to the highly polished surfaces of the seating tube in the outer jacket. See Figures 4, 5 and 6. Before the pump proper is allowed to be lowered into the tubing string, preparatory to seating it in the outer jacket, a thorough inspection is made and all scarring protrusions removed.

It will be seen that the conditioning processes include all parts of the pump with the exception of the outer jacket. Inasmuch as this remains on the tubing when the pump proper is removed on the rods, it is not available for servicing. However, due to the simplicity and ruggedness of the outer jacket assembly, conditioning is not deemed necessary except at rare intervals or when the tubing is pulled for other reasons. When servicing does take place it is usually limited to replacing the lock barrel or seating tube which undergoes a certain amount of abuse and wear while in operation.

Traveling Barrel or Inverted Rod Type Pump

In troublesome sand conditions it has been found that the situation can be relieved in some cases by the use of the traveling barrel or inverted rod type. As the name would indicate, the pump in this case is the regular rod type inverted, with the liner barrel traveling instead of the plunger. As a matter of fact, the traveling barrel or inverted is identical to the regular rod type in every respect with the exception of anchorage and operation. Anchorage of the plunger is accomplished in the same manner that the barrel was secured in the regular. Instead of a solid pull rod, however, a hollow pull pipe is used to allow for fluid passage. This assembly is anchored with the lock sleeve, mandrel, and barrel as in the regular. In the place of the cupped sealing head, the inverted uses a top cage containing a ball and seat and equipped with threads for screwing to rods. In the stroking motion, the barrel is lifted the length of an ordinary stroke over the stationary plunger.

It is believed that sand can be handled more readily with the inverted pump, inasmuch as the con-

FIGURE 6

This liner face has been galded and cracked due to improper tension of the collars.

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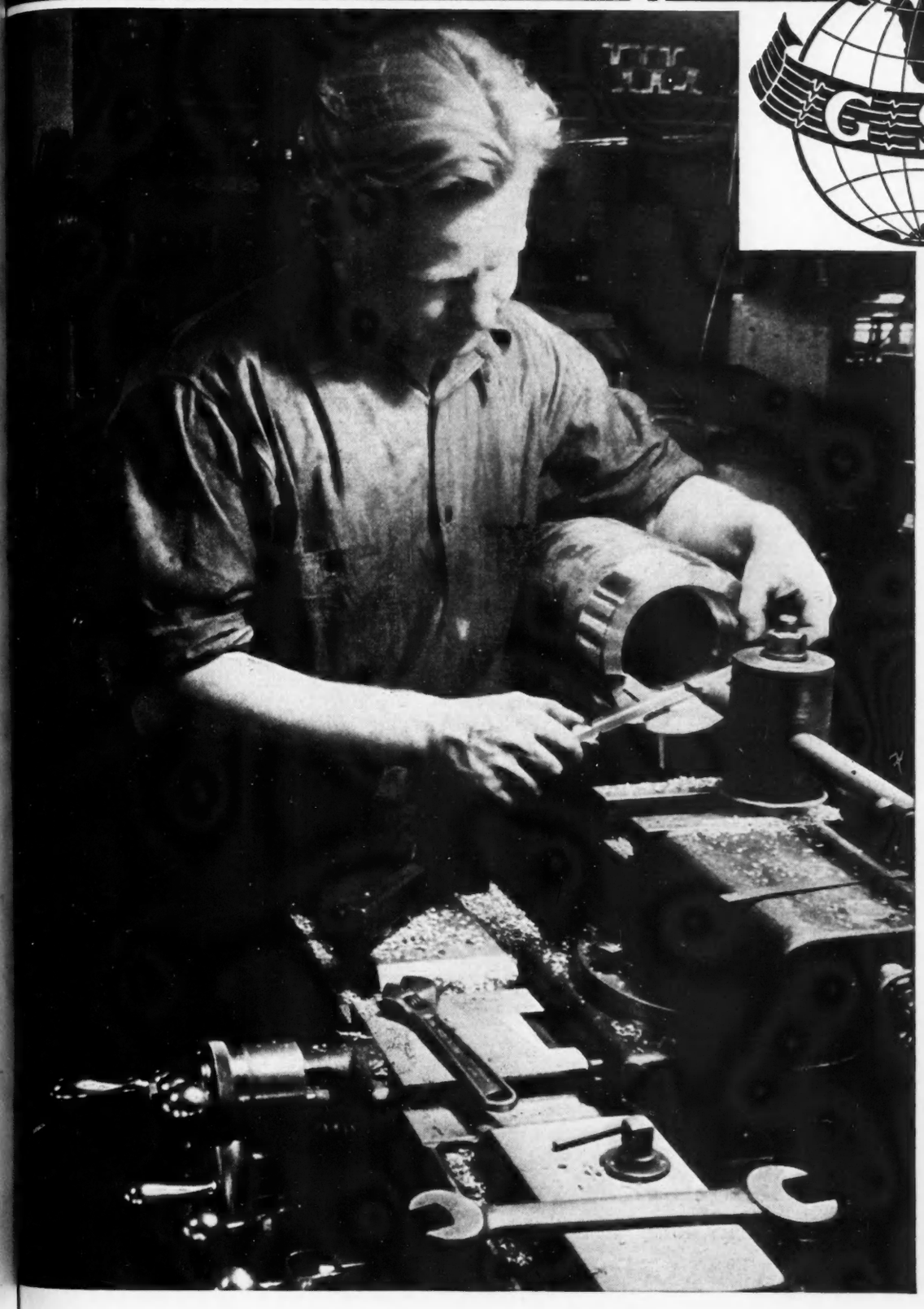

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struction does not permit the entrance of sand into the working mechanisms quite so easily as in the regular rod type. With the exception of the ball and seat in the top cage, the entire top of the pump is sealed against sand, permitting its only entrance in the bottom through the clearance allowed by the pull pipe.

One variation peculiar to the inverted pump is in the seal of the pump proper in the outer jacket assembly. Due to its construction, it cannot be anchored in the sealing tube but is secured by the lock mandrel assembly alone.

This practice has its advantages, however, as the pump may be run, if necessary, without the outer jacket. In this case, the lock barrel into which the mandrel is secured, is merely coupled to the tubing joint, which takes the place of the outer jacket. In the majority of instances, however, it is thought advisable to use the jacket if possible.

The conditioning processes in application to the traveling barrel is employed with little variation from the regular rod type. Liners, plunger, and anchorage assemblies are treated to the same inspection and overhauling, with the exception of the traveling valve. Inasmuch as the traveling valve in the inverted pump is exposed, and therefore subject to more abuse, special care is exercised in inspection and servicing.

Liner Salvage

Always the outstanding expense in all types of plunger-liner pumps, the purchase and continual replacement of liners is regarded with serious consideration. The importance of obtaining the longest possible life from any one set of liners, in relation to reducing expense, is well realized with definite steps taken toward accomplishing this end.

In all rod type pumps, whether inverted or regular, the liners are all insert type. That is, they have no outside rims (termed O. D. rims) but are machined perfectly smooth externally. Other than this feature, the manufacturing and metallurgical construction are the same as in the Parker type or similar plunger-liner pumps.

Previous to the practice of reboring, all new liners were cast and machined to an inside diameter of 1.750 (in the two-inch size). With this size liner the wall thickness was such that no further rebores could be obtained. With the introduction of the reboring process, however, a new liner is manufactured with an inside diameter of 1.710, forty thousandths smaller than the standard, and later termed as the Minus forty liner. Fitted with a minus forty plunger, the pump is run until the liners wear past the stage of making reasonable production and are then removed to be rebored twenty thousandths larger (1.730), termed as the Minus Twenty. When this run is completed and the liners again worn, the final rebore is introduced; going this time to 1.750 *or the original size of the old standard liner.*

The new Minus Forty liner is now marketed by the majority of pump manufacturers and its use, in many instances, has replaced the old type altogether. The work of reboring is usually invested in the particular pump concern then handling the company's business as is the responsibility of realigning.

A Great Advancement

A far cry from the haphazard methods in the past, the operation and maintainance of deep well pumping equipment is now conducted on a highly exacting and scientific basis. The importance of efficient operation is known to be in direct proportion to the amount of expenditures, as well as the amount of production obtained.

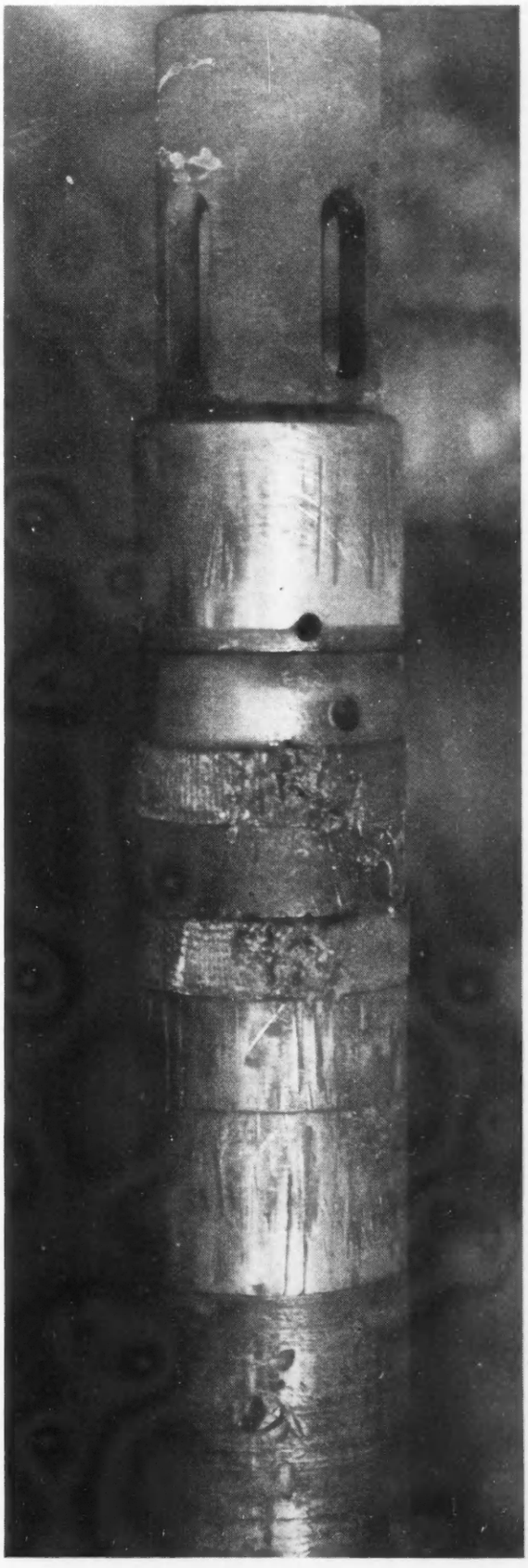
The advantages of rearranging the liners so that those bearing the least amount of wear are kept constantly in the stroking area was a decided step forward in increasing efficiency and, at the same time reducing expense. Likewise, the reboring processes alone were directly responsible in reducing liner purchase costs fully 50 percent and this coupled with the several runs obtainable through liner rearranging practically eliminated the heretofore alarming expense suffered from continual liner purchases.

Through the use of the various servicing processes the pumping equipment is kept in as near perfect condition as possible. Pump mechanical failures while under fire, once commonly accepted as inevitable, are now generally confined to instances in which the old methods are still in force.

Reprints of the foregoing article are available at nominal cost. Write The Gulf Publishing Company Houston, Texas

Common Abuses in Making Up Pumps Cause Much Damage

Burrs, grooves, and ragged protrusions left by wrenches on the pump result in serious damage to the highly polished surfaces of the seating tube. Figure 4 (left) shows wrench marks on bottom assembly that should have been dressed smooth to prevent damage to the internal surfaces of the sealing tube. When made up without removing these marks the sealing tube was damaged and resulted in mutilation of the cups on the sealing head as shown in Figure 5 (right).



Gas Conservation

EFFICIENT UTILIZATION PROVIDED BY MODERN GASOLINE PLANT

By F. P. PETERSON, Engineer,
Southern Minerals Corporation

IMPORTANT strides are being made along the South Texas Gulf Coast in the conservation of gas, by establishment of markets for products previously popped into the air. While gasoline plants are not new to South Texas, improved units and operation are being perfected.

In the Saxet field, Southern Minerals Corporation has devised an entirely new system, in which gas is being taken from wells under various pressures. By installation of proper control equipment, the wells are so controlled as to produce efficiently and at the same time enable operation of the plant at a steady rate.

The residue gas separated from the oils are handled through the natural gasoline plant. The gasoline goes to storage, while the dry tail gas is available for several uses. It is planned to erect the first South Texas carbon black plant to absorb that portion of tail gas not being used now. The gasoline stripped from the gas is blended again with the crude.

THE natural gasoline absorption unit, recently completed by Southern Minerals Corportion, is located ten miles west of Corpus Christi and a mile and a half north of Clarkwood, Nueces County. The Saxet plant, as it is named, has a rated capacity of 20,000 M.C.F. daily at 30 pounds pressure.

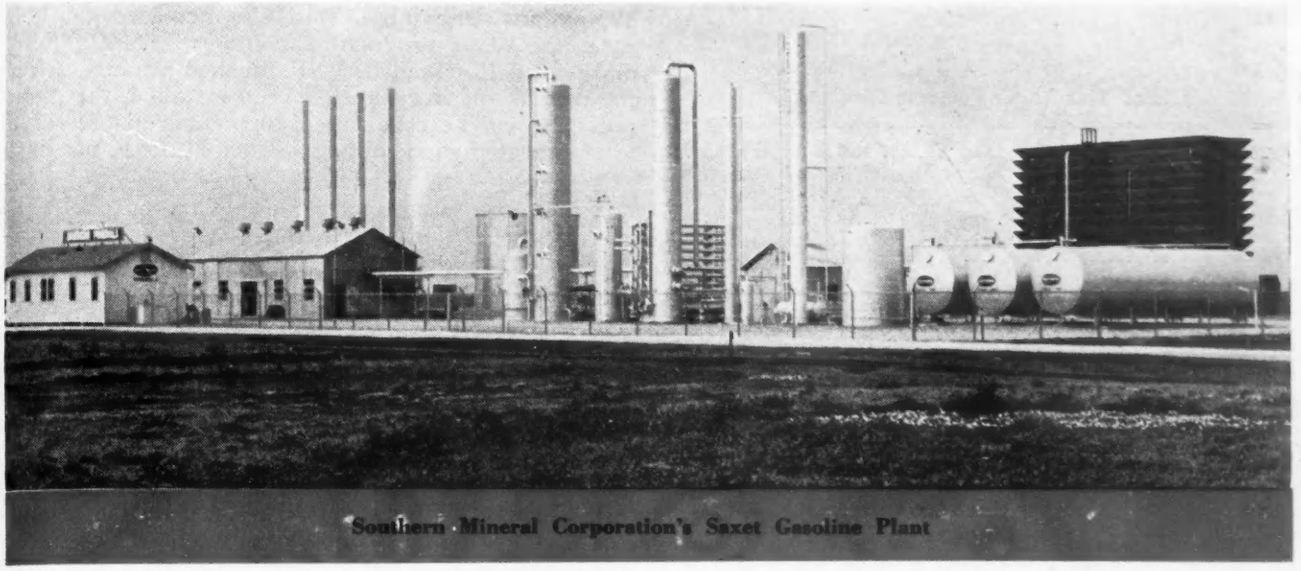
Preliminary studies of the field were made last fall, through September and October. Gas measurements were taken, using a pitot tube for calculating volumes. Samples were gathered from representative wells and sent into a commercial laboratory for low temperature fractional distillation analyses. These were used, in preference to charcoal tests, to form a composite picture of the entire field. A typical analysis of the present inlet gas is given in Table 1. At this time, the major portion of this gas is being taken from wells producing from the 5800-foot Frio sand.

The gas gathering system consists of two main headers of 10-inch spiral welded pipe with laterals of 6-inch, 4-inch, and 2-inch standard line pipe. The main headers, including a 16-inch meter run to the inlet scrubber, are welded. All the laterals are screwed lines. As the soil conditions in the area are somewhat corrosive, special precautions were taken and the entire gas gathering system has been treated with an asphalt base coating. There are altogether 10 miles of pipe in the system, made up of two miles of 10-inch, 1¾ miles of 6-inch, 4¼ miles of 4-inch, and two miles of two-inch. At this time, 120 producing wells are tied in with the gathering system.

Of Latest Design

The Saxet plant is of the latest design, incorporating the best features of a conventional well-pressure type unit. Construction throughout is welded, and all pressure vessels conform to the A.S.M.E. code for unfired vessels. Both absorbers, the main absorber and the reabsorber, have 16 trays and are equipped with double mist extractors. The main absorber has a rated capacity of 20,000 M.C.F. at 30 pounds. The rich oil is pumped from the primary absorber through a bank of 12 heat exchangers. The oil is then vented before being returned to a second bank of six heat exchangers. Finally, the rich oil is passed through a steam preheater and into a combination still-dephlegmator unit. The still has 11 trays with a built-in vent section. The two bottom trays are fitted with built-in heating elements. These elements permit a reduction in the partial pressure steam required because of a higher temperature in the still base. Exhaust steam from the make room pumps is superheated and serves as agitation steam for the still. Top and base temperatures are 230 and 375°F., respectively. The still-dephlegmator is operated at 60 pounds gauge pressure. A gasoline reflux is used to control end point and condense agitation steam. Vapors from the rich oil vent and raw make tanks are sent to the reabsorber. The stripped or lean oil from the still base is passed back through the heat exchanger bank and into a surge tank. From there, the lean oil is pumped out into three parallel banks of atmospheric coolers before the cycle is completed through the main absorber and reabsorber.

The centrifugal pumps, handling a 41° A.P.I. kerosene absorption oil, are steam turbine driven tandem units. These circulating pumps are duplicated for stand-by service. Reflux, transfer, feed and loading pumps in the make room are direct acting, simplex pumps. Raw make and reflex pumps for the fractionating column are low clearance, direct acting simplex pumps designed for this type of duty. Gasoline vapors from the top of the dephlegmator are passed through two banks of primary condensers in parallel and a final condenser in series. The heavier ends,



Southern Mineral Corporation's Saxet Gasoline Plant

condensed in the primary section, serve as the gasoline reflux for the dephlegmator. The raw gasoline, from the final condenser, is pumped from the make tank through heat exchangers into the fractionating column. The lighter components, including a portion of the butane and all of the propane, ethane, and methane are cut out as overhead products in the fractionator. The overhead is partially condensed in an atmospheric, open type reflux coil. The condensate, consisting almost entirely of butanes, is returned to the column as reflux. The uncondensed vapors are released through the residue gas vent.

The finished product, from the base of the fractionator or kettle, is sent through heat exchangers and into a final cooler before passing into the storage tanks. The fractionator unit has a rated capacity of 25,000 gallons per day of a 26-70 finished product. At lower column capacities it is of course possible to make a range of products down to a butane free grade by simply varying the operating pressure and temperature conditions.

Operations Automatic

Insofar as it is possible, operations throughout the plant have been made automatic. All the controls and indicating flow meters are located on a common panel in the make room. Indicating flow meters have been placed on the oil lines to the absorbers, on the partial pressure steam line to the still, on the reflux line to dephlegmator, and on the reflux line to the fractionating column, thus permitting an accurate analysis of operations at all times.

TABLE 1

Analysis of Composite Gas—Sample from Saxet Field

Methane	91.72% by volume
Ethane	3.86
Propane	2.01
Iso-Butane	0.23
N-Butane	0.99
Iso-Pentane	0.20
N-Pentane	0.36
Hexanes and heavier	0.63

An open type atmospheric cooling tower was selected as being most suitable to conditions along the Gulf Coast. This is an eight-bay unit constructed from California Redwood. The louvres are fitted with drift retrievers. The atmospheric coolers and condensers have admiralty metal tubes and steel tube sheets. A pit for the water circulating pumps has been provided so that at all times the pumps have a small head on the suction side. These centrifugal pumps are driven by steam turbines and are duplicated for stand-by service. The piping for one has been so arranged that this unit serves as a plant yard fire pump. These pumps have a rated capacity of 1500 gallons per minute with a 75-foot head. Inasmuch as the plant is supplied with raw river water from a line nearly three miles distant, and under pressure at all times, a 2000 barrel emergency storage tank has been placed directly behind the boiler house. This supply would serve for a 36 hour period in the event of a line failure.

The boiler room layout incorporates several new features. The four 125 horsepower 200 pound working pressure oil country boilers are supported on built-up steel foundations. Steel skirts, fitted with sliding doors, control the air supply. Makeup water is fed through a three-stage system consisting of an atmospheric heater and deaerator, a low-pressure condensate receiver, and a high pressure condensate tank. Condensate is returned to the latter from the preheater and superheater at 125-pounds gauge. This arrangement furnishes an unusually high feed water temperature of 353°F., and in addition serves to precipitate all of the carbonates and the majority of the sulphates present in the raw feed.

An analysis of the raw water from Nueces River is given in Table 2. Feedwater and residue fuel gas are automatically regulated with changes of boiler loads. A gas engine driven, 17 kilowatt, alternating current generator is sufficiently large to permit the use of small vapor proof motors in the plant yard, besides furnishing current for plant, office, and camp lighting.

Finished product storage at the plant consists of three 10x40 tanks. This is small because of the fact that the finished gasoline is pumped out almost

TABLE 2

Analysis of Raw Water—Nueces River, Calallen

Total Hardness—as Ca CO_3	14.5 grains per gallon
Bicarbonates—as Ca CO_3	11.7
Chlorides—as NaCl	13.7
Dissolved Silica—as Si O_2	12.3 p. p. m.
Suspended Silica—as Si O_2	10.7
Alumina	1.7

daily to the ocean loading terminal located on the turning basin through a 3-inch line 6½ miles long.

Soil conditions present a peculiar problem with foundations in this area. An alluvial deposit that swells and contracts with wet and dry weather conditions has an average thickness of from 20 to 25 feet. The obvious solution has been to spread out the bearing load over a properly designed and reinforced concrete slab that will resist this contraction and expansion.

Construction was started with the first week in January of this year. Weather conditions were ideal. The plant was placed in operation March 10, or a little over two months later. Operations have been continuous since then without shutdown. Since January 1, the field has enlarged to such an extent, with the deeper productive zones, that the plant is now operating at 40 percent overload. These new sands are in the 6300-foot, the 6700-foot, and the 6900-foot levels. Complete operating data, furnishing an analysis of plant operation, has not been included with this article because of the present overload. It is interesting to note, however, that the 18 pound R. V. P. finished product that the Saxet plant is making at this time has an octane number of 79.6.

A contract, on a turn-key basis, has recently been let for the installation of new equipment that should rectify this abnormal condition of plant operation. The new unit will include a duplication of the present absorber group, the installation of a 255-ton butane refrigerating system, a propane-butane recovery unit, and storage facilities for the finished grades of propane and butane.

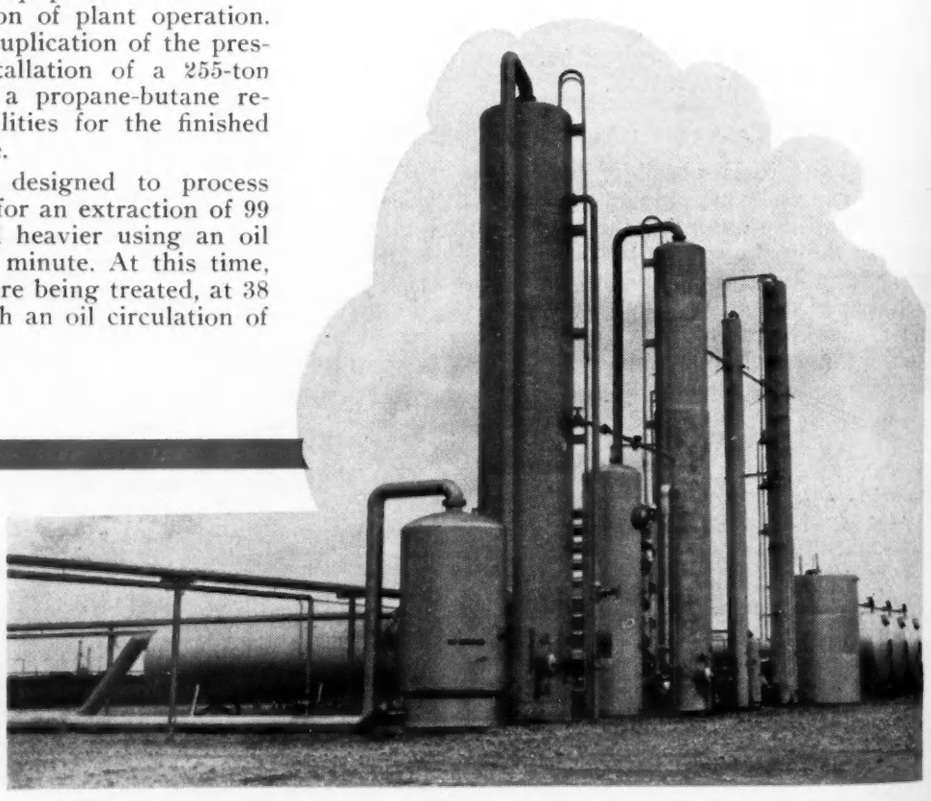
The plant was originally designed to process 20,000 M.C.F. of gas per day for an extraction of 99 percent plus, of pentanes and heavier using an oil circulation of 326 gallons per minute. At this time, 28,000 M.C.F. of gas per day are being treated, at 38 pounds absorber pressure, with an oil circulation of 370 gallons per minute. With the increased gas volume, the plant production averages 10,500 gallons daily of an 18 pound R. V. P. finished product. After the new absorber group has been installed, the plant pressure will be reduced to 30 pounds gauge for a total expected gas volume of 40,000 M. C. F. per day.

Averaged with yearly atmospheric conditions in this area, the butane refrigerating system will permit a 30 degree drop in the lean absorption oil temperature. This reduction in temperature will be equivalent of a 60 percent increase in the plant absorption factor.

An anticipated recovery of approximately 7500 gallons of butane daily will furnish an immediate supply for the market demands of South Texas. The propane-butane unit should be in operation by the middle of June.

Contracts have been submitted to Southern Minerals Corporation for the utilization of residue gas in a carbon black plant. Laboratory and field tests on this gas have indicated a commercial recovery of 1.3 pounds of carbon black per 1000 cubic feet. With a total of from 30 to 40 pounds of pure carbon available per 1000 cubic feet of average residue gas, a fair idea may be gained as to the efficiency of present day methods of carbon black extraction. In this instance, a maximum of 4.3 percent would be recovered. Inasmuch as Southern Minerals is definitely pledged to a policy of gas conservation for industrial usage, and since the parent company, Southern Alkali Corporation, is in the chemical manufacturing industry, sale of the residue gas to chemical plants producing solvents will be given preference. A tentative pipe line right-of-way and plant site have already been selected.

Plant operations are under the direction of D. H. Hancock, field superintendent, and H. H. Hiatt, plant superintendent.



Absorber group with distillation unit and fractionating column in background.

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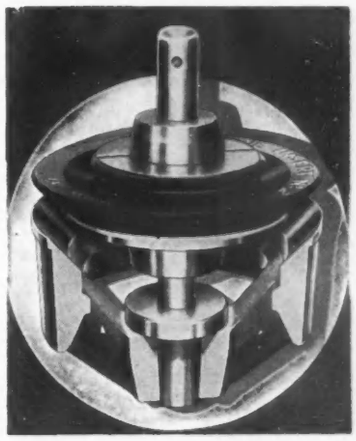

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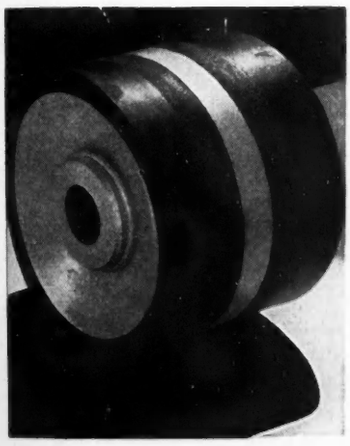

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Lifting Costs

VARY GREATLY DUE TO TAX RATES, BOOKKEEPING AND WELL CONDITIONS

By BRAD MILLS, Associate Editor

LIFTING costs vary from a few cents per barrel in flush fields to an extreme maximum of almost one dollar per barrel in some of the oldest settled areas. Due to a lack of uniformity of such charges as taxes in the various states, lifting costs fluctuate sharply when producing conditions are similar. The cost of lifting oil normally increases as the potential or tendency to flow decreases, but no curve or scale derived from one well can be applied to another well.

Accounting Systems Vary

It is impossible to sharply define lifting costs, because of a lack of agreement between producing companies. No uniform accounting system has been fully adopted in any producing district, although some progress along this line has been made. If the production history of one well were turned over to six companies, six different lifting costs would be shown. This lack of uniformity is caused by a variation in expense and investment charges, and to differences in their application. Where one company shows a lifting cost of 15 cents per barrel, another company might show a cost of 20 cents.

In determining lifting costs, many companies simply combine labor, power, repair and tax charges into one item. Such charges as supervision, depreciation on certain items, and a few questionable items are thrown against the lease and are not considered. These operators are chiefly interested in determining the mechanical aspects of the lifting costs, and prefer to charge intangible items to another phase of operations. A California company at one time claimed a lifting cost of eight mills per barrel for two wells, but an investigation disclosed the absence of labor charges and taxes. The correct lifting cost was about 10 cents per barrel. The company's eagerness to show the efficiency of a new type pump prompted the inclusion of mechanical and power charges only. At the end of the year an adjustment was made and the correct lifting cost shown.

Lifting costs reported by a few companies undoubtedly are too low, the desire to make a good record often forcing the exclusion of legitimate charges. Other companies may show higher lifting costs where many interests are involved and it is important to include all reasonable operating charges. Lack of agreement as to where lifting charges stop and handling charges begin has complicated the accounting picture wherever a number of interests are involved. No sharp dividing lines can be drawn to block off lifting costs from other costs near the border lines, but the application of common sense and fairness give good results.

The natural formation pressure is the most efficient and least expensive lifting medium. Proper utilization of this pressure flattens the cost increase curve and gives a lower average lifting cost than would be shown by wide-open production methods. Early production in such fields as Long Beach, Santa Fe Springs, Humble (shallow), Burkburnett and Seminole hastened use of the pump and added greatly to lifting costs during later production stages.

One well at Kettleman Hills was completed in 1930 with an initial flow of 11,000 barrels daily. Production during the first year was 3,660,000 barrels, or 10,000 barrels daily. The well flowed without interruption and the lifting cost per barrel made a new low record for California. The effect of this heavy early flow, however, has been and now is reflected by increased lifting costs in subsequent completions. The lifting cost in the first well also has pointed sharply upward because of salt water intrusion and a reduced formation pressure. The open flow of the first group of wells completed in this part of the field showed a very low lifting cost in the beginning, but the dissipation of formation energy was an intangible charge that should not have been overlooked.

Production Practices Influence Costs

Lifting costs for any well or field are affected by production practices. Theoretically all companies should produce oil at about the same cost when operating under similar conditions. The wide variation in lifting costs in each field reflects both good and poor production practices. In many marginal fields some companies can operate at a profit where others are forced to suspend operations. A study of conditions often reveals a means of reducing lifting costs.

A comparison of lifting costs between two operators in the Long Beach field revealed a sharp difference in operating efficiency. The average depth of wells on each of the two leases was about the same, but the lifting cost per barrel for one lease was much higher than for the other. Two years ago the more progressive of the two operators cleaned out the three wells on the lease, installed some new equipment and generally modernized the lease. In less than two years he has paid for the expense out of reduced lifting costs. Smaller and more efficient power units were installed, and the yearly production has been greater than was shown during the two years of operation prior to the change. The operator who continues to use the old equipment is producing less oil than his enterprising neighbor, and the oil produced costs more per barrel. The "down" time of the three old wells has been greater than in the worked-over wells.

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6 THE REMOVABLE TYPE . . . is run and withdrawn with the rods.

7 THE RIGID TYPE STANDING TUBE . . . is screwed on a standing valve shoe and run with the tubing.

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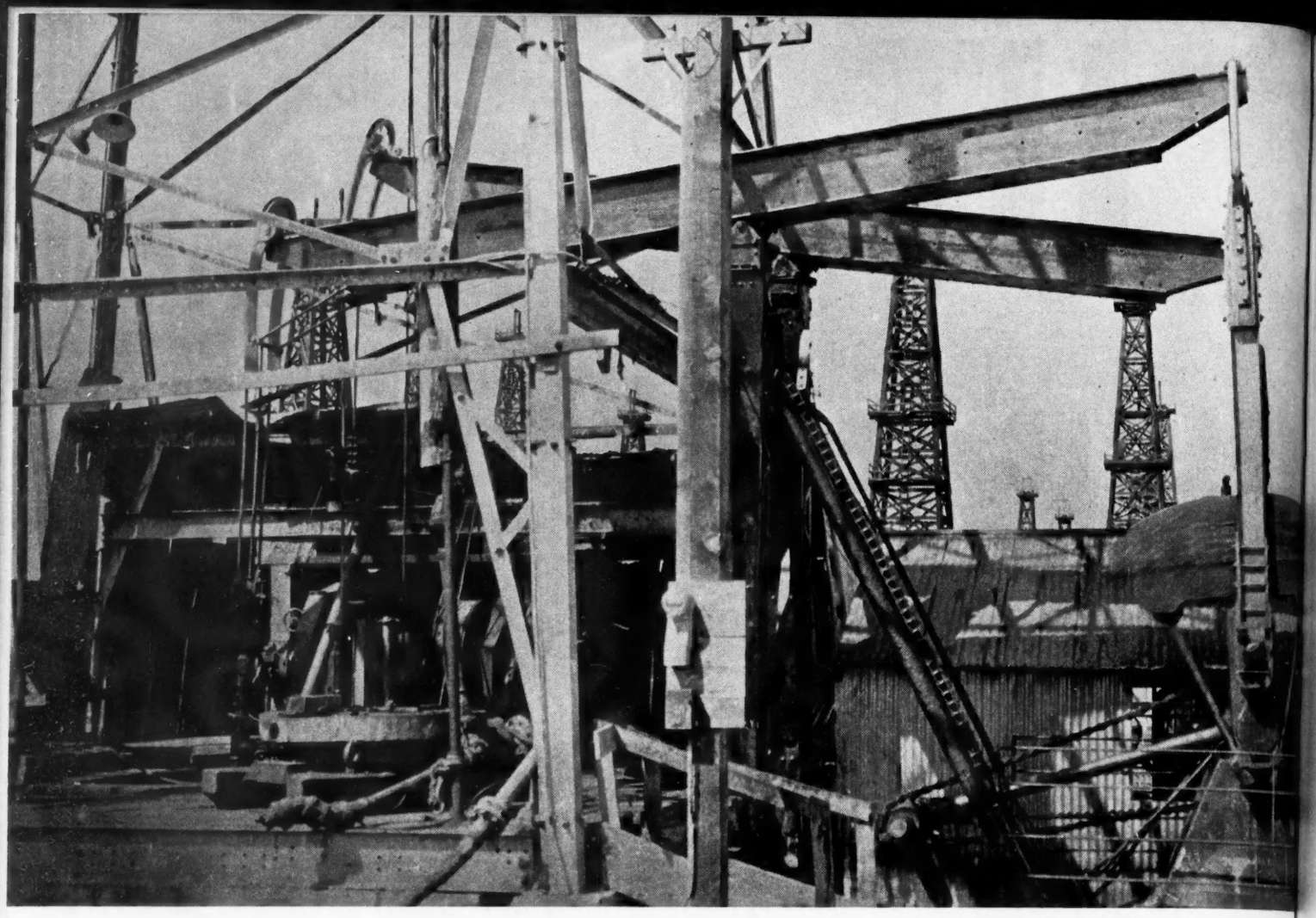

Lifting cost is reduced to a minimum by this installation in Long Beach. The two wells shown in the hook-up are only five feet apart and are pumped with one small engine. Each produces from a different level.

The lifting costs of oil produced by conventional pumps vary from 10 cents per barrel to 40 or 50 cents in extreme cases. This range chiefly applies to Mid-Continent and Gulf Coast fields, where taxes are fairly uniform. The California lifting costs do not parallel these costs for several reasons, with taxes being an appreciable item of difference. In some fields a lifting cost of 20 cents per barrel prevails, but in other fields a lifting cost of 25 cents would be a fair average. Costs on troublesome leases fluctuate violently, and the average for two or three years is required to give a representative figure.

Where it is necessary to fight for oil at excessive depths or under bad operating conditions, the lifting cost often approaches the economic maximum. In shallow fields having a high fluid level, the lifting cost may not be the principal production problem. A few fields that do not flow naturally have been developed, and in such areas it has not been unusual for oil to fill the hole almost to the surface. These fields are pumped at low cost, but they usually are not market factors. They produce heavy oil that shows little gas, but the lubricating oil content may be high. The Mt. Poso, California, field is a good example of a shallow area that yields a high average well production at low cost on the pump. During the early stage of development it was possible to pump as much as 1000 barrels daily from a single well in this field.

Many old fields present opposite extremes, and the lifting cost per barrel represents a large part of the posted crude oil price. This condition particularly applies to the depleted areas that yield oil carrying a good lubricating stock. If the oil did not command a high price, it would be impossible to pump wells making from one-fourth to three barrels daily. The posted price of this oil usually is from two to three times that of less desirable crudes.

High lifting costs yearly force the abandonment of many small wells hovering on the economic border line. A reduction in operating costs has saved many troublesome producers from a similar fate. An improvement in conditions and high oil prices often intervene to save wells that can not be profitably operated during periods of low oil prices. Producing wells of this type seldom return a satisfactory profit over a long period, and abandonment or suspension of operations seems the most logical solution to the problem.

A radical change in operating technique occasionally restores small wells to the profitable side of the ledger. The small production of stripper wells, however, seldom justifies the installation of elaborate or expensive equipment, and ingenuity becomes an important factor.

The three principal lifting stages in light oil producing districts are the flush flowing period, the period of high artificial recovery, and the straight pumping period. During the intermediate stage the gas lift and other forms of high-volume methods are sometimes used. The fluid level usually remains high in a well for some time after it has stopped flowing. The lifting cost increases during this intermediate production stage, but it is much lower than the average for the later pumping period.

The lifting cost should not be confused with the cost of producing oil. The former is only one part of the

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OASIS—*Any place or spot, or any scene or part of one's experience, that is refreshingly different from others.*

—WEBSTER.

For many an oil man the presence of a Frick-Reid field store is a friendly, reassuring thing. Its roof and walls may be of corrugated iron, but it houses facilities more precious than gold.

Its capacity for delivering "Quality Products" is as broad as the experience of America's foremost manufacturers of oil country supplies and equipment.

It is there to stay as long as the industry needs it — a phase of dependable Frick-Reid service that careful buyers fully appreciate.

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latter, and in the end may not represent more than one third of the total production cost. The cost of producing oil begins with the earliest exploration and continues throughout the life of a lease. Lifting costs obviously may be applied only when oil is being produced. When no oil is developed, the cost is simply charged to wildcatting expense.

Taxes Are High

Taxes represent the greatest single item in lifting costs in several of the leading oil producing states. In Mid-Continent and Gulf Coast states taxes range from 7½ to 8 cents per barrel, with a variation upward in Louisiana. Since oil is taxed as it is produced, this charge is thrown wholly against lifting costs. As the lifting costs increase, there is no reduction in tax charges per barrel produced. As a well approaches the marginal stage and it becomes increasingly difficult to operate at a profit, no relief from taxes should be expected.

The California tax rate is lower than the rate in other principal oil producing states, because of the small assessment against producers for maintaining the Division of Oil and Gas. Other taxes are applicable, however. The straight severance tax in this state is negligible.

The crude production tax in Louisiana ranges from four to 11 cents per barrel, depending upon gravity of the crude oil. In extreme cases this charge is more than half of the total lifting cost, but on the whole it is less.

The average lifting cost for all Texas fields is about 20 cents per barrel, the range extending from a minimum of about 10 cents per barrel to a top of 40 cents. A few extremes either above or below this range might be found, but oil produced above and below the minimum and maximum lifting costs stated is negligible. The lifting costs for Oklahoma and Kansas do not differ radically from those shown by Texas, although extremes in these states are to be found.

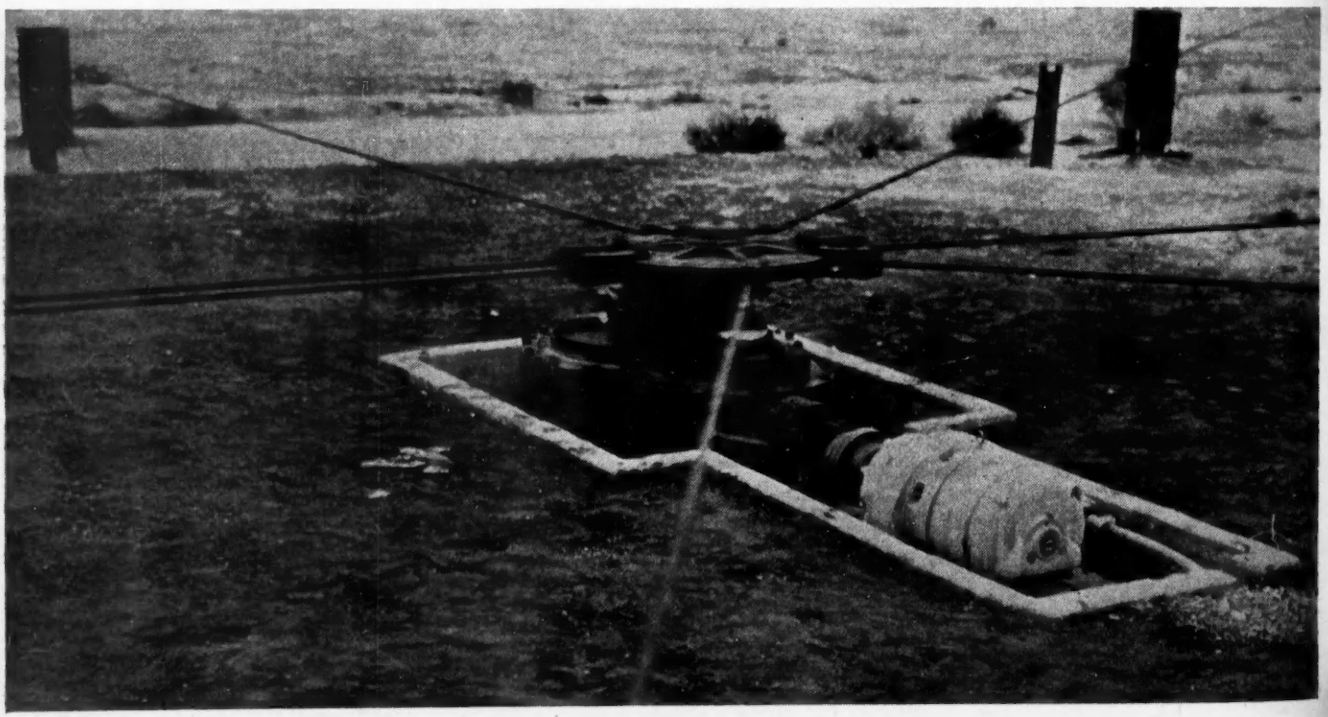
The cost of producing oil, which should not be confused with the lifting cost, is about 60 cents per barrel in Texas. This means that ultimately the producer must receive an average price of at least 60 cents per barrel for crude oil to break even. Obviously, an average selling price of one dollar per barrel would return a profit of 40 cents per barrel to the producer. This average applies to all fields now active, and conditions in the future may easily change the figure.

East Texas Is Low

The East Texas field, now the most important producing area in the world, shows a very low lifting cost. Most of the 23,000 wells are flowing, and the cost of obtaining less than 25 barrels per day from each producer is nominal. The lifting cost for the field averages between 11 and 12 cents per barrel, of which the greater part is taxes. The pumping wells are produced at much greater expense than the flowing producers, but the average lifting cost for the pumping wells probably is not more than 20 cents per barrel.

Lifting costs in several of the oldest Pennsylvania and Ohio fields are very high, but many operators virtually have lost a record of lease costs and other charges that might affect the operation of newer fields. The high posted prices and steady demand for oil of this type make it possible to produce wells that would be non-commercial in other producing districts.

Lifting costs increase as the average producing depth of wells increases, but the rise is not in direct proportion to the depth increase. At one time it was believed impossible to pump a well from 5000 feet, but improvement in pumping equipment shattered that belief. Wells have been pumped successfully at Santa Fe Springs from 7000 feet, and it no longer is considered an achievement to recover oil by pump from 6000 feet. The outlook for pumping the 10,000-foot well is not bright, but there is no immediate need for such an attempt. Other forms of artificial lift probably will be developed for handling oil from wells now flowing from 8000, 9000 and 10,000 feet.



Small powers like this one pump groups of small wells in shallow fields. Power cost is an appreciable item in the lifting problem in such areas.

COMPLETE AXELSON CATALOG IN THIS BOOK

The Composite Catalog is also the Axelson Catalog, containing twenty pages of condensed encyclopedic descriptions and illustrations of our products for the petroleum industry. For advanced information on Deep Well Plunger Pumps and Sucker Rods, look for the red covered Axelson section beginning on page 127 of the Composite Catalog. Note the many exclusive features of the products and accessories shown on these pages—the result of forty-five years of research and specialization on oil well plunger pumps and sucker rods, produced in two of the best equipped factories in the industry.

*Wherever petroleum is found.

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DEEP WELL PLUNGER PUMPS **AXELSON** SUCKER RODS

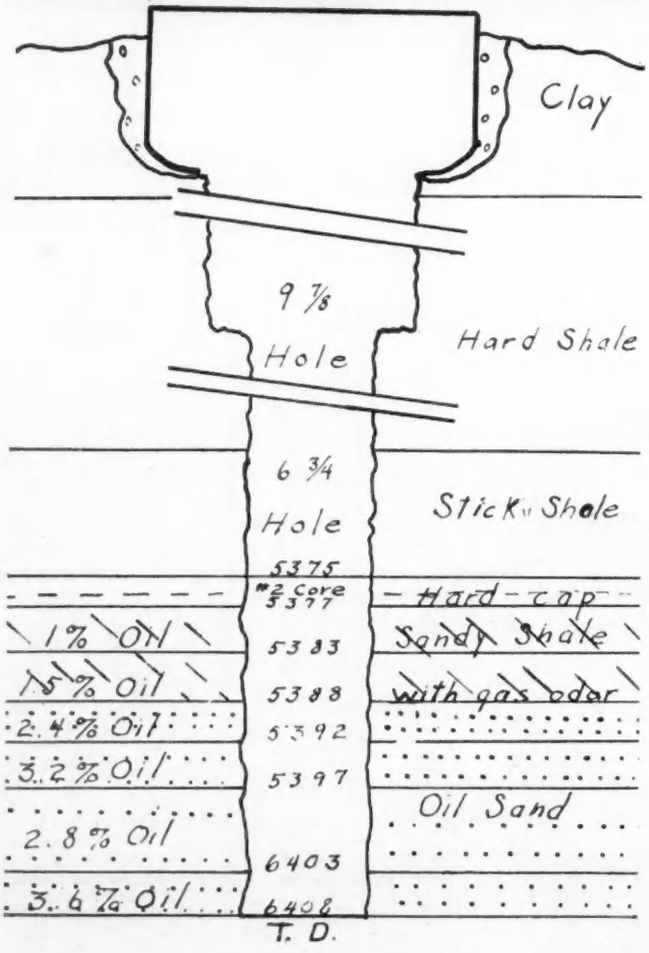
Interesting Methods of Completing Wells

USED IN CORPUS CHRISTI AREA REPRESENTATIVE OF ALL CONDITIONS

THE deceptive sands found in the Corpus Christi area of South Texas have challenged the old ways of getting oil out of the ground, and have given impetus to modern methods of producing oil. Therefore, the methods of discovering fields, locating sands, drilling and completing of wells are of interest.

The three fields immediately adjacent to Corpus Christi embody problems found in the majority of fields in Texas, and of the world. Between the dangers of blowouts, swabbing, jetting with gas, combatting salt water, the practices used in the area are applicable to similar conditions in other fields.

FIGURE 1



Geology Is Important

Geology has made great strides in the past few years, and this science has been a necessity around Corpus Christi. Geological and geophysical engineers have benefited by improved methods of coring and catching cuttings. With this information the paleontologist can give a more accurate correlation of logs, and so the operator is in a better position to check the progress and possibilities of his well.

With all this primary data available the operator has other devices that assist him in making an oil well. Electrical survey instruments have proven a boon to the operator. They tell the location of a horizon that may have been passed, and the probabilities of it being a productive sand. This information is of great aid in deciding whether to set casing or not, and if the casing has been set, the proper level to produce from is ascertained. This knowledge, together with the proper classification of the core, adds to the chances of a producing well.

In deciding the possibilities of a core a percentage test has been found practical. This test consists of taking 100 c.c. of the core and adding 250 c.c. of ether to it. The sand is removed by a hot bath. The Oil residue is measured quantitatively to give the percentage of saturation by volume of sand test. Under 2 percent is considered a gas sand while all over 2 percent is considered oil sand. Figure 1 shows the actual log of a well that this test proved.

Another test that has proved popular is the drill stem test. This is done by lowering a packoff to a predetermined seat and the packoff is then opened. The resultant show of oil and gas pressure shows the possibilities of the sand. However in a few instances, this test has its disadvantages as the sudden opening of the packoff sucks in the sand and salt water thus spoiling the chances of ever making a well.

Casing Setting Practices

A productive sand having been found, the all important question of setting casing and cementing confronts the operator. As there are several different methods the proper one should be decided upon be-

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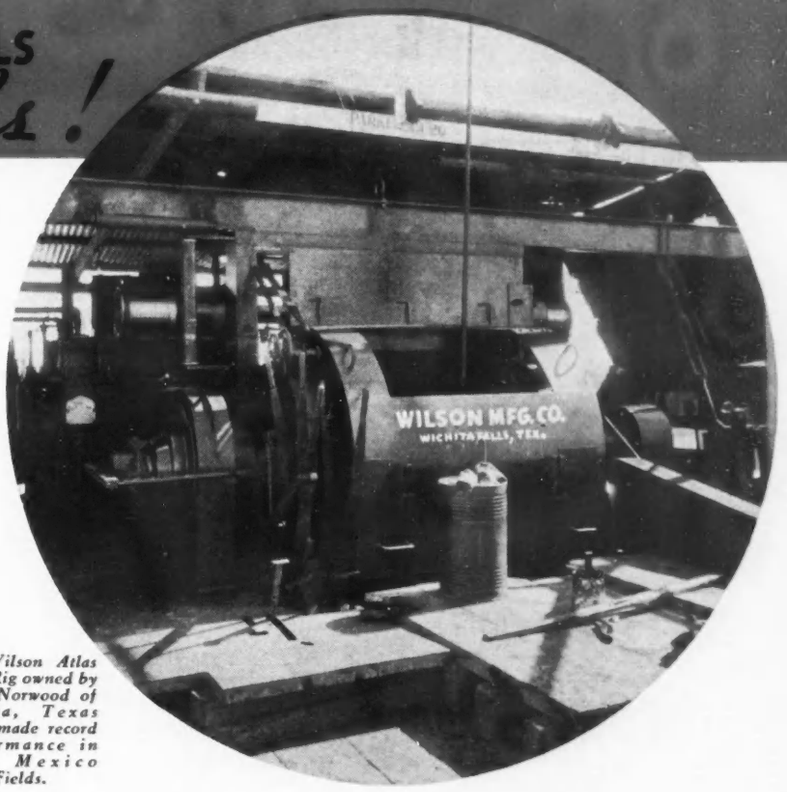

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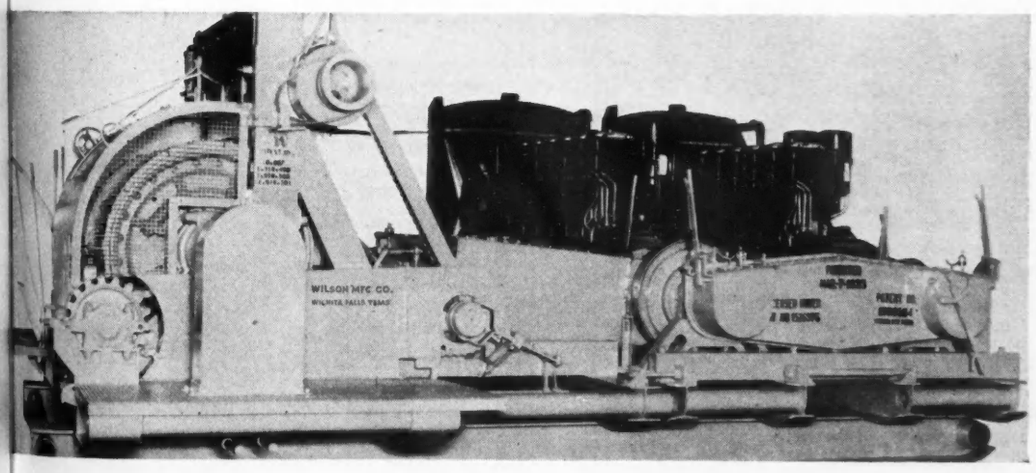

FEATURES

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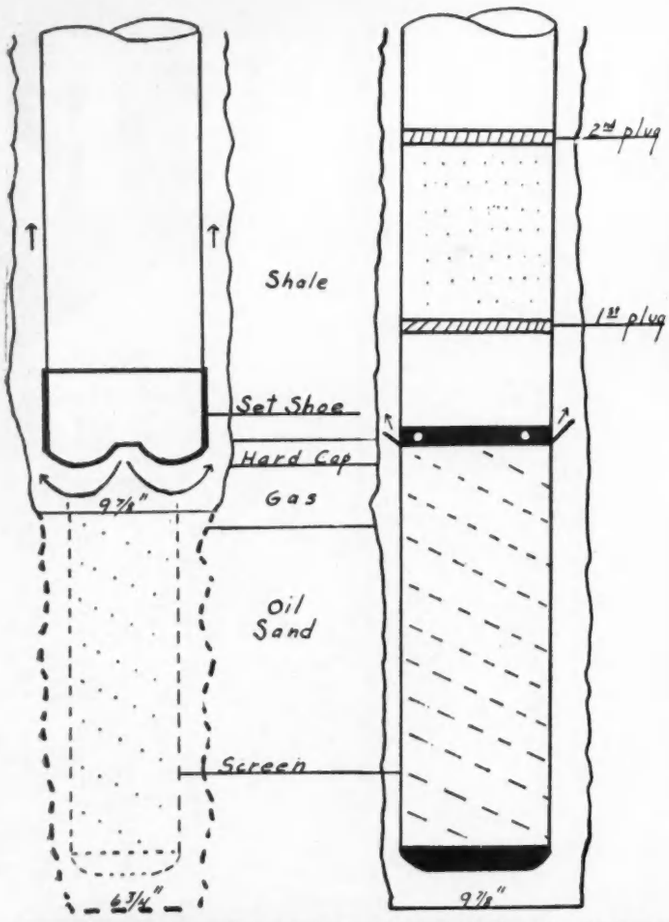

FIGURE 2

FIGURE 3

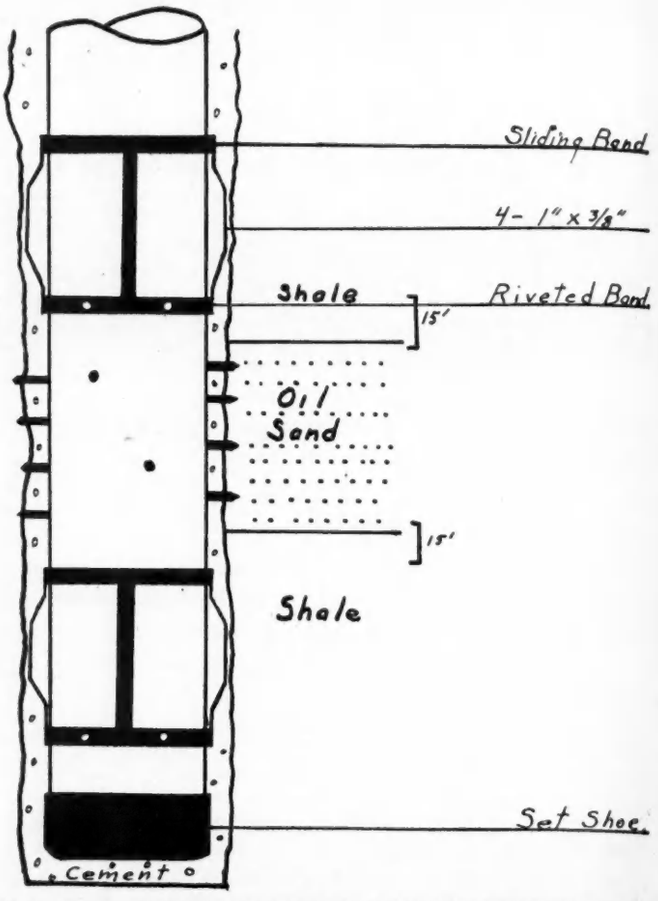

FIGURE 5

fore setting. The conditions that must be considered are the amount of gas pressure, a favorable oil-gas ratio, dangers of salt water and the chances of having to work-over the well.

Setting the casing on top of the sand, (usually where the drill stem test was taken), is a method that has been in use for some time. When this method is used and the rat hole redrilled and the screen set, the picture is as shown by Figure 2. The well then produces from the annular space represented by the difference in the outside diameter of the screen and the diameter of the hole.

A somewhat similar method is the full-hole cementing job. This consists of running the screen on the bottom of the casing, the outside diameters being the same. As Figure 3 shows, the point of cementing is the same as when the casing is cemented at the top of the sand. When ready to cement a plug is run to the set shoe that opens the ports thus sending circulation above the screen. The cement is then mixed and pumped into the casing, followed by the second plug that closes the ports. The vents around the ports are to prevent the cement from settling around the screen.

A number of wells in the Corpus Christi area are completed by setting the casing through the oil sand, and gun perforating as shown in Figure 4. By

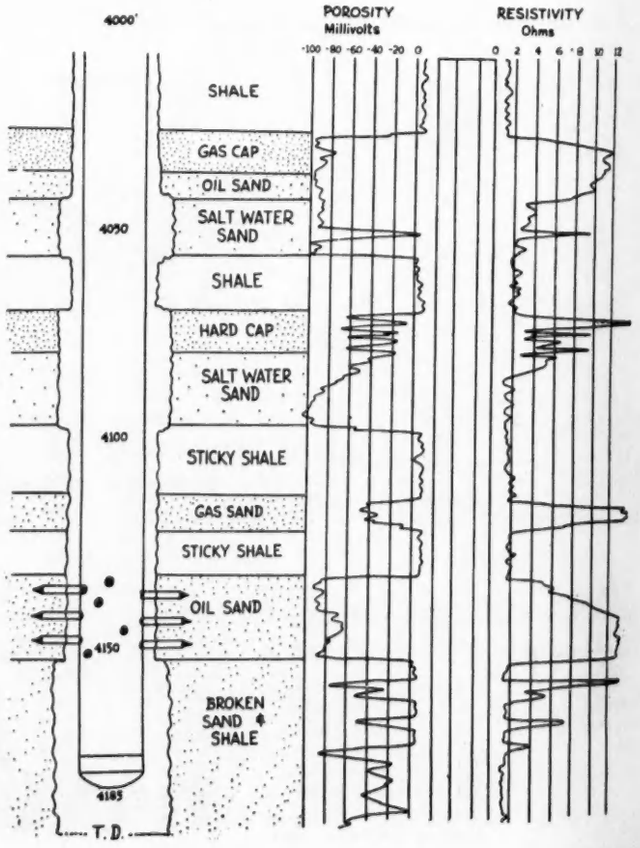

FIGURE 4

A resume of the benefits to be derived from Petreco Electromatic Dehydration shows important advantages and savings all along the line — from the well through the refinery. These advantages and savings accrue to all departments of both large and small operating companies, whether they transport and refine their own crudes or not; and are sufficient to assure desirable profits over and above the low treating cost.

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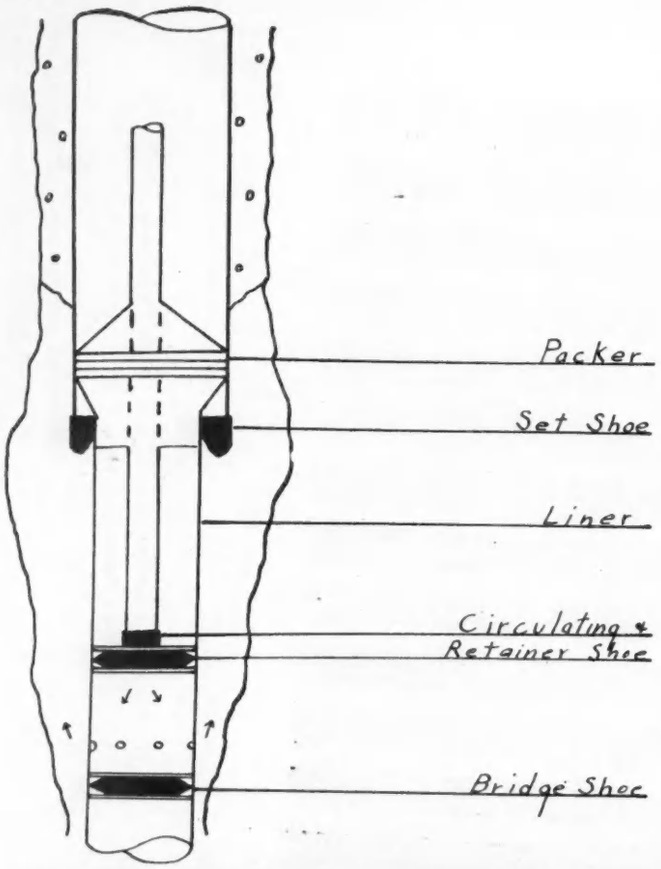


FIGURE 6

this method the gas, oil and waste sands are completely cemented off. Consequently, the well produces from a certain level decided by the operator and not from an annular space.

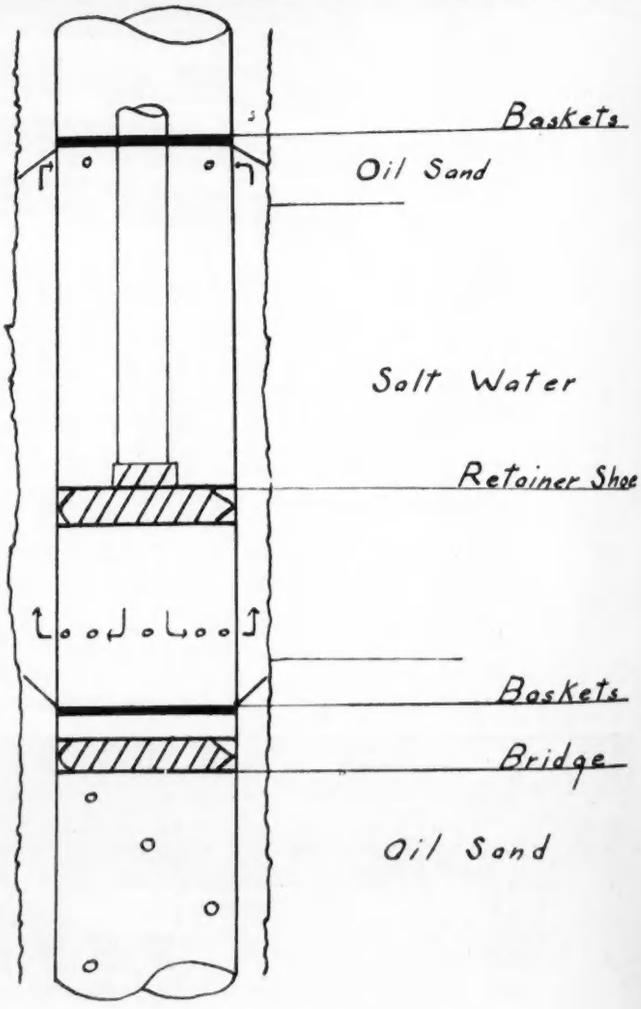
Whatever the method of cementing may be, the use of guides as demonstrated by Figure 5 is beneficial to a good cement job. These guides have been used in this area with satisfactory results. Even in the straightest hole ever drilled the casing will hang to one side or the other. By using guides the casing is centered in the hole thus allowing the cement to circulate freely on all sides and insuring a good cement job.

Gun perforation has proven an aid in completing and operating oil wells. Narrow sands that have defied production are now producing great quantities of oil. Salt water encroachment can be stopped by certain methods of gun perforation. Unfavorable oil-gas ratios can be remedied and greater gas pressures if desired and existing may be had. The following examples show how these results may be obtained.

A common method is the squeeze job as shown by Figure 6. Lack of circulation or failure of a sand to take fluid presents the greatest problems in reworking a well. By the use of gun perforation, circulation may be obtained at the desired points or permit the well to be squeezed at the proper place. In Figure 6 the casing has been set on top of the sand and due to a bad cement job around the shoe or due to too much gas it is desired to cement around the top of the liner and the shoe. The liner is gun perforated at the lowest point where cement is desired, and the cement is squeezed into the formation under pressure. It is held there by closing the blowout preventer and all valves, or by the aid of internal set shoes manufactured by various specialty companies. The lower shoe acts as a bridge to prevent cementing the bottom of the liner. The top shoe has a back-pressure valve in it that holds the pressure against the sand to prevent the cement from dissipating back into the casing. After the cement has set the well is ready to be perforated at the desired level.

Another typical job is represented by Figure 7. In this example there are two sands that will produce with a salt water sand in between. The blank liner or casing, as the case may be, is gun perforated at the lowest point to be cemented and also at the highest point. A retainer shoe is set between the perforations thus getting circulation around the pipe. An important point to be brought in here is that the number of perforations should be greater below than above, to produce a squeeze effect upon the formation. This done, all that is necessary for production is to drill out the bridges. The use of baskets as shown by this example have been found advantageous to prevent cement from going beyond the desired points. The baskets are of canvas with spring

FIGURE 7



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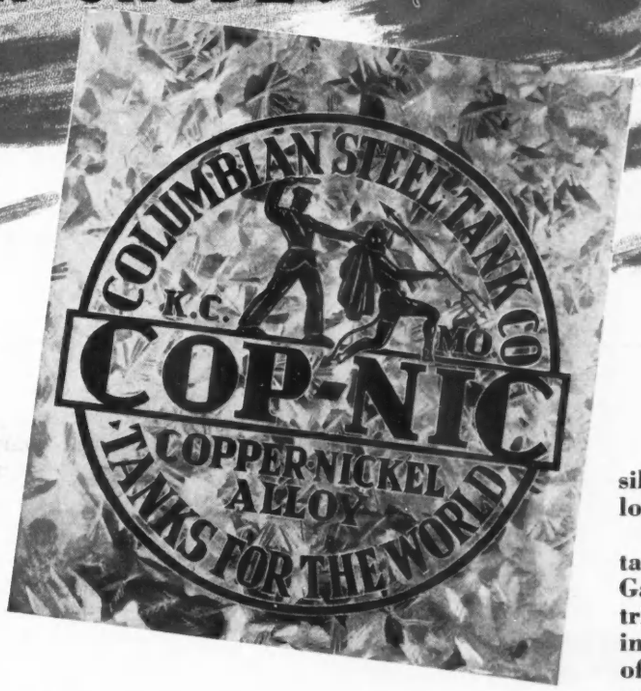

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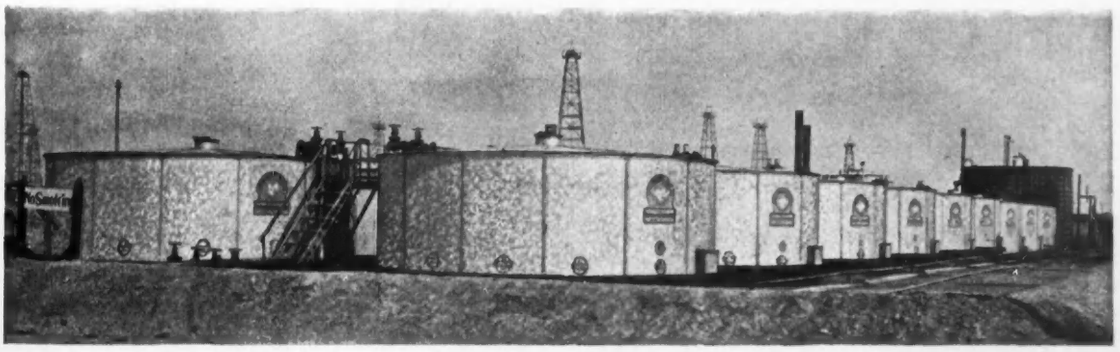
(Below) Battery of Columbian Cop-Nic Galvanized Bolted Steel Tanks in a sour crude field.



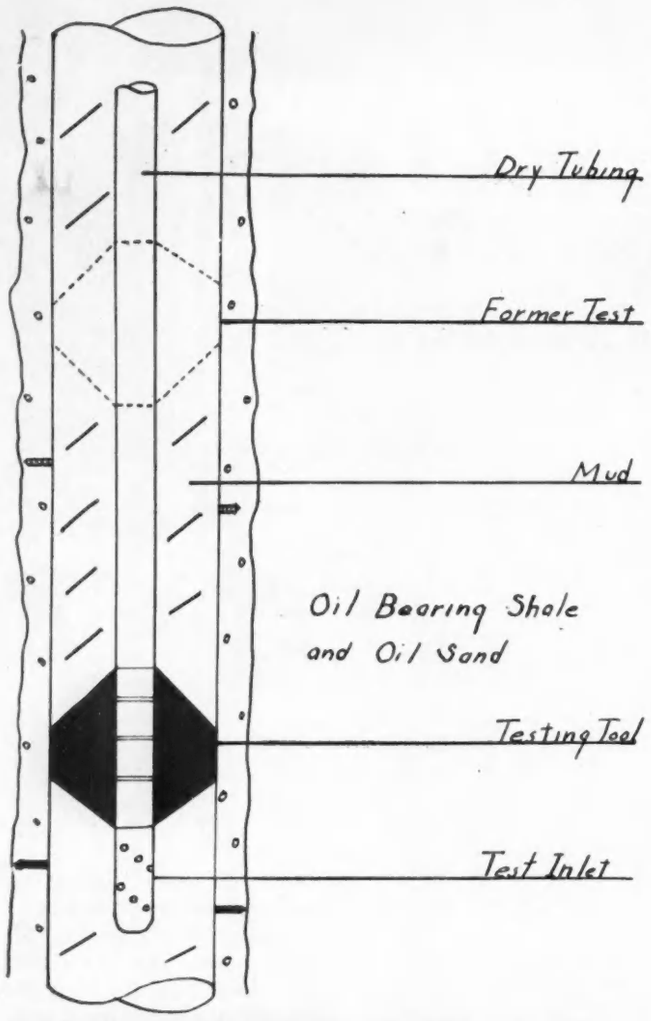


FIGURE 8

ribs. The spring action forces the baskets out to the sides of the hole.

Another process that is widely used is the shoot and test method. In large bodies of oil sand and oil bearing shale the proper depth of production may not be known. To prevent the costly method of completing and then plugging back and then completing again, the shoot and test method is used. Casing is set throughout the area to be tested. A certain depth is then gun perforated with a few shots and the well tested with a hook wall packer. If satisfactory results are not obtained the process is repeated until the whole area has been tested. Figure 8 demonstrates a well that has been treated in this manner.

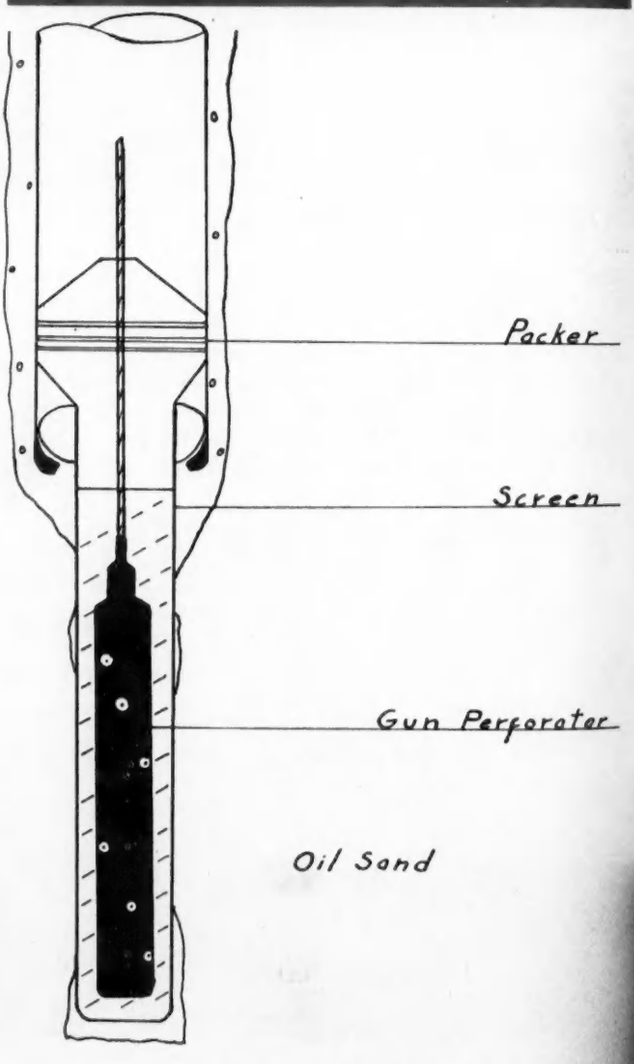
Another source of trouble to the operator is the clogged screen. A soft or heaving sand will cave in on the screen thus shutting off the flow or decreasing it to such an extent that the well has to be reworked. Instead of pulling the screen and the washing and other operations necessary to do this the Corpus Christi operators have found results with the gun perforator. The screen is left in the hole and the gun perforator lowered into the screen and fired. An inner screen is set and the well is again ready for production. It is easy to see the steps saved by this method are worthwhile as far as allowables are concerned. Figure 9 is a well in the Saxet field that was put back on production by this method in one day.

Part of the Corpus Christi area is lacking in gas especially on the edge of the field. This defect was ingeniously overcome in the method shown by Figure 10. Here the oil sand was found to have insufficient gas to raise the oil to the top of the ground. As a higher sand was found that had gas but no oil the two were combined. The oil sand was perforated as was the gas and a packer set between the perforations. By means of lift valves the oil was raised to the ground.

Although the gas pressure is sometimes low at the producing level this is not so in the upper sands. The possibilities of a blowout are always present and care must be taken in drilling the well. But in spite of the best of care a well is apt to blow out at any time. One example is a blowout between strings as in Figure 11. This particular well was blowing between the surface casing and the oil string. The braden head had not been put on yet and there was no way of stoppig the blow. Nor was circulation possible because the well had been cemented and had not been drilled out. So the well was gun perforated at the gas sand thus getting circulation to kill the blow and later to cement.

It is seen in such an area as this that the importance of completing a well properly is dependent

FIGURE 9



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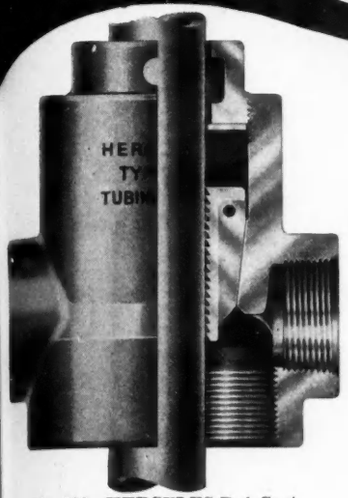

Fig. 208—HERCULES D-4 Cast Steel Tubing Head with Slips. "Overhead-Packed."

Fig. 101 — HERCULES Type B "Overhead-Packed" Forged Steel Casing Head with Slips. Also made in Cast Steel.

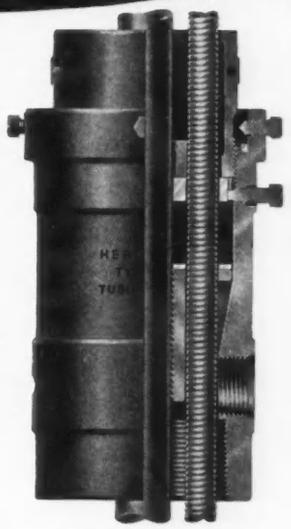

Fig. 210—HERCULES Type R Forged Steel Tubing Head with Conduit for Cable for Reda Pump.

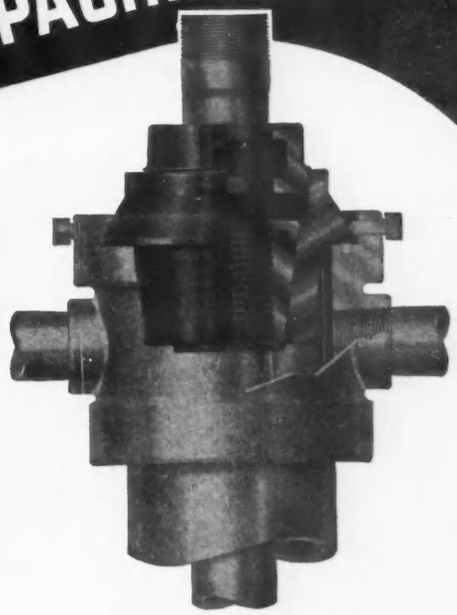

Fig. 216—HERCULES "Overhead-Packed" Tubing Hanger with Slips, sitting in Berry pattern casing head.

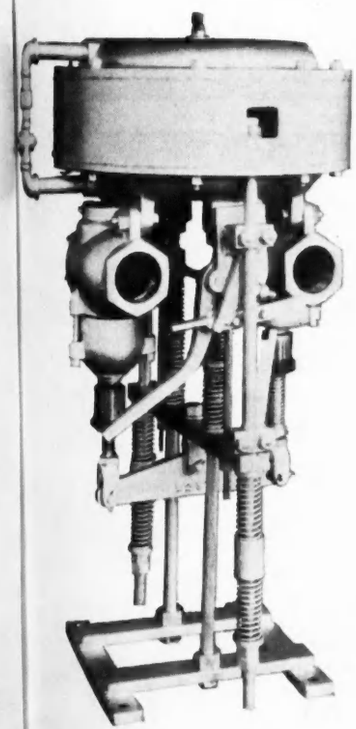

Fig. 214 — HERCULES Engine-Control Valve, Automatically or Manually Operated.

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See HERCULES Section, 1937 Composite Catalog, pp. 797-800.

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Fig. 215—HERCULES Combination Globe-Relief Valve

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HERCULES

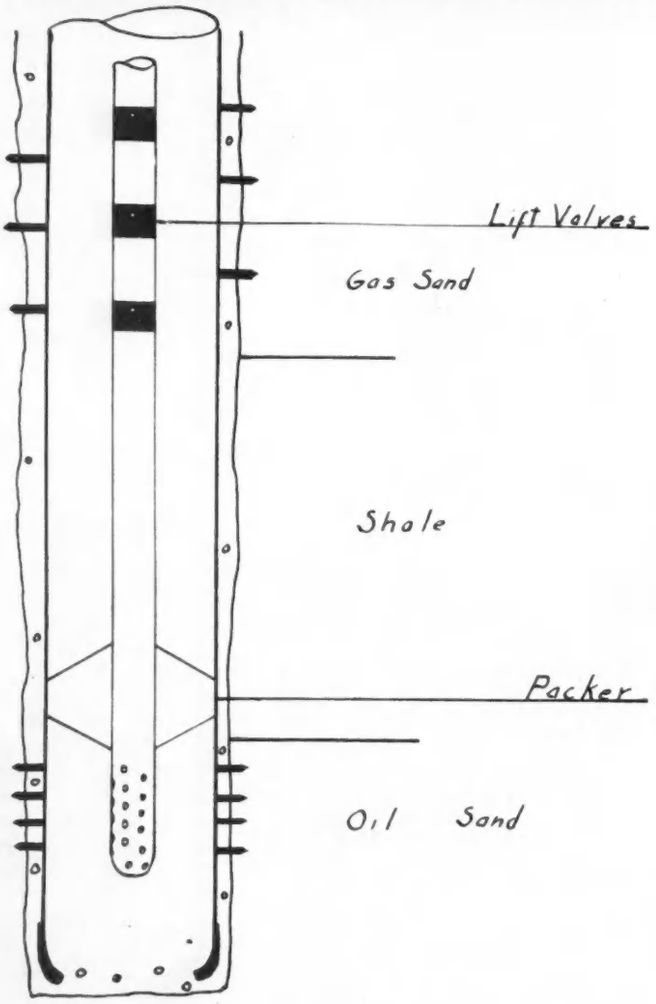
Oil Well Specialties

HERCULES TOOL TULSA

upon the gas and salt water control. Even with all the modern devices it is still possible to misjudge the location of the various gas, water and oil sands. The measurements may be wrong or a core may be logged wrong. It is the wish of every operator to complete his well properly and still keep down the costs. But never should the cost influence the correct treatment of the well. Later work-overs are far more expensive than charge for proper completion the first time. Figure 12 shows a well properly completed for this field.

The problem here was to get production without salt water with the nearby gas completely shut off.

FIGURE 10



This operator, having had trouble before cementing these sands off, took the precaution of underreaming the gas and salt water sands. Therefore he was sure of having a good cement job at the bottom of the casing in the salt water on account of the cavity. However he was still uncertain about the gas sand. It was possible that the gas sand was not cemented due to cavings or some other reason. So the gas sand was gun perforated and given a squeeze job. Consequently, before the initial attempt to produce from the oil sand the operator was sure that the gas and salt water sands were securely cemented off. With the plugs drilled the well is ready to be gun perforated for production.

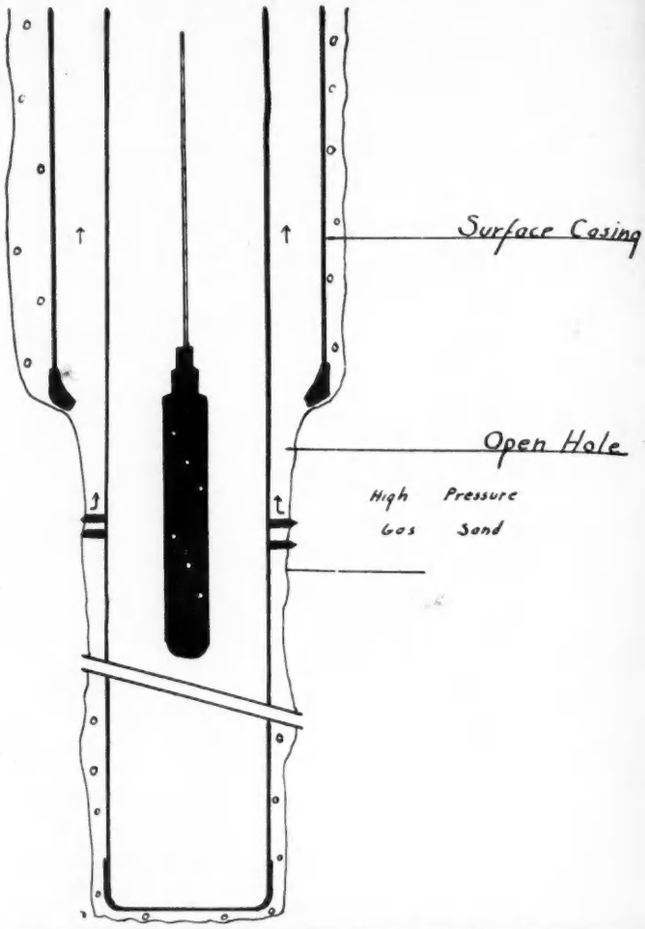
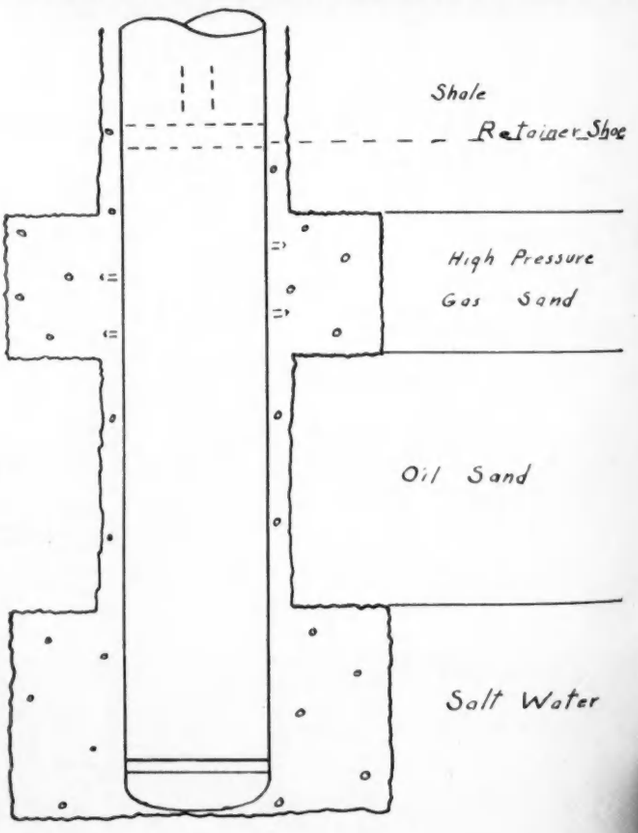


FIGURE 11

FIGURE 12



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Producers - Refiners

•

Dear Son:

The Frick-Reid district manager came in today, and I am still chuckling over his poorly concealed astonishment when I asked him to give me detailed information about Axelson pumps and sucker rods. He knows that for many years I have used nothing else. Every experienced producer knows "There is no economical substitute for quality."

I am sending you photographs left on my desk by our Frick-Reid friend:

1—AXELSON Top Collar Both Ends Type (T.S.L.) Pump, widely used by successful producers to combat extremely sandy conditions.

2—AXELSON "Hang by the Neck" (R.S.L.) Pump, composed of a barrel unit which remains stationary with the well tubing, and a plunger unit traveling with the sucker rods.

3—AXELSON Groove-Seal (R.C.D.) Pump. Low initial cost. Gives satisfactory service under average well conditions.

4—AXELSON Star-B (R.C.D.) Pump. For stripper wells where production has become too limited to warrant the further use of tubing pumps. Installed and removed with the rods.

5—AXELSON Cages for T.S.L. Pumps give extremely long life. The illustration shows heavy duty 4-wing top cage, pin type.

6—AXELSON Multiple Standing Valve—an improved unit to replace the regular standing valve of the T.S.L. Pumps. Lasts much longer. Suggest you investigate this.

7 and 8—The famous AXELSON Double Pin Type and Box and Pin Type Sucker Rods. Available in the right grade of steel to meet any pumping conditions.

9—AXELSON Guide Type Paraffin Scraper Coupling. Should ALWAYS be used immediately above the pump and at intervals throughout the rod string.

Bear in mind that Axelson has devoted almost fifty years to the technique of lifting oil from wells. Your Frick-Reid store will have the right Axelson equipment for your area, regardless of the difficulties to be overcome.

Sincerely

Dad

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SUPPLY CORPORATION

Branch Stores in Old and New Fields
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PITTSBURGH, PA.
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Mid-Continent Water Flood Survey

REFLECTS SUBSTANTIAL INCREASE IN TOTAL NUMBER OF PROJECTS

[By FRANK B. TAYLOR, Staff Writer]

WITH the first burst of water flood activity a matter of history, engineers and operators of northeast Oklahoma and southeast Kansas settled back to make a complete and exhaustive analysis of this manner of production, and its relation to the future of production, in the northern Mid-Continent shallow area. Investigation into all factors related to flood control, manner of application, and normally expectant production volumes, resulted in the immediate condemnation of much acreage that at first appeared ideal for flooding. Rumors to the effect that previously planned floods were not as successful as at first indicated is another fact that has led to greater stability in flood planning and expansion of projects.

The investigation that has been necessary to establish a sound basis for working of water floods in the general area has not changed the original manner of application, but in all probability will result in a greater ultimated yield on a per acre foot of content basis. More accurate control is possible through greater knowledge of sand conditions as determined through extensive coring. Both three-inch and two-inch cores, taken either with rotary or cable tool equipment, are being examined in core laboratories. The present trend appears to be toward the taking of three-inch cores as there is a larger volume of the sand being drilled available for tests from each foot of penetration.

With extensive testing of tracts considered for flooding, operators widened their area of operation to include all present available production from Miami and Franklin Counties, Kansas, to Okfuskee County, Oklahoma. Along this 400-mile front there are about 28 projects outlined for water flooding, with numerous other projects contemplated but only existing in the form of leases at this time. Tracts acquired for prospective floods total over 80,600 acres in each of the two states, although a noticeable degree of caution has held back active development chiefly through initial expenditures of about $1750 per acre and the difficulty of obtaining sufficient water in many sectors.

Following the period of inactivity surveyed areas that proved satisfactory through laboratory tests of cores have been recently blocked and a number are being drilled at this time. The expected swing of interest to include the true shoestring type of accumulation has occurred, and a number of projects are starting in these zones.

Floods Widely Scattered

The extent of the area included in water flood investigation has spread to shallow production as far north as Franklin County, Kansas, where Carden, Wood and Fleeger have the most northerly project in NE¼ 15-17s-21e, a short distance southeast of Ottawa. This flood prospect is being tested at this time, with contemplated operations dependent upon the outcome of sand conditions and oil content. Present indications are entirely favorable.

Another northern project that is dependent upon testing is scheduled for the Parker-Goodrich shoestring, north and west of Goodrich, Linn County, Kansas. This is a tract recently obtained by a major firm and includes parts of sections 19 and 20-20s-22e. Plans are not definite.

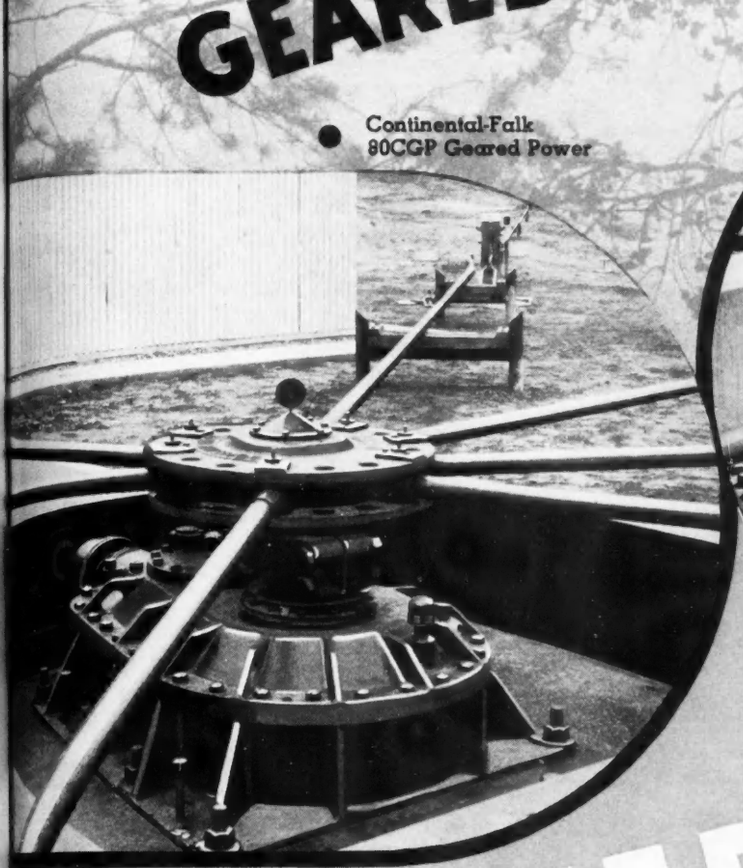
Brundred Oil Corporation of Oil City, Pennsylvania, but with local offices in Garnet, Anderson County, is a pioneer shoestring operator of the Mid-Continent. The firm has a flood under operation a few miles south of Garnet. The project is to shoestring sand at 685 feet, is well-founded and laid out. Water was started to the sand December 7, 1936, and may be expected to influence production within a short time.

In addition to the Brundred project in Anderson County, Reed Oil Company with local offices in Garnet, has obtained the Ewing ranch property north of Bush City in section 13-21s-20e. Tests are now underway on this tract with a five-spot plan in prospect. The producing strata is a shoestring Squirrel sand at 650 to 665 feet. In all, the shoestring is about 18 miles in length, although only a small section of the total is to be immediately processed with water provided that tests indicate sand conditions to be responsive.

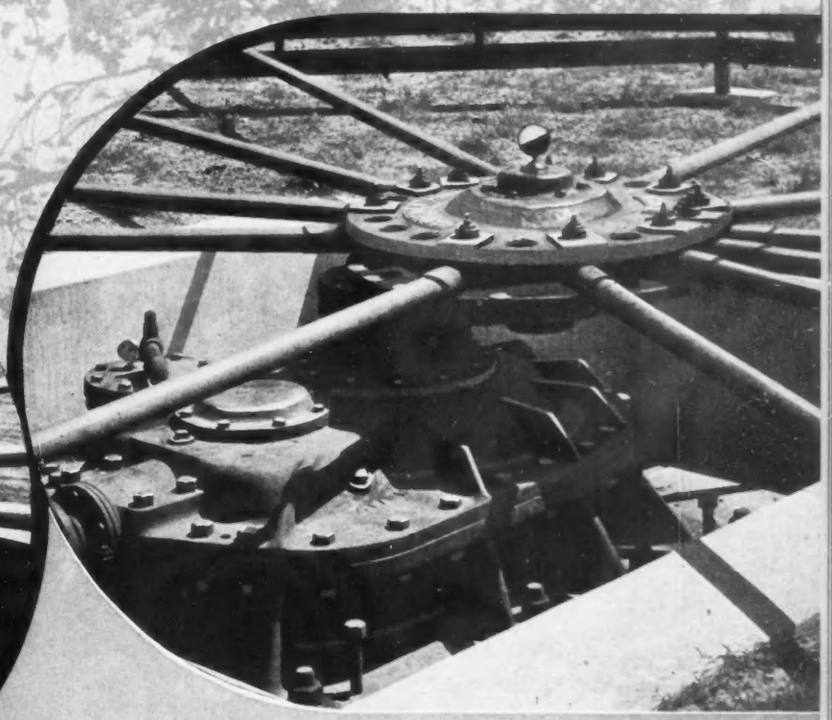
Three flood projects are at various stages of development about 6 miles east of Moran on the Allen-Bourbon County line. Old production has been coming from Squirrel sand at about 680 feet, in a semi-shoestring accumulation. At some places the production is only three locations wide, the greatest width being about ten locations.

Shell Petroleum Corporation has a tract that is being cored and drilled for water injection. Gled Oil Company has a dam constructed for impound-

CONTINENTAL-FALK GEARED POWERS



● Continental-Falk 80CGP Geared Power



● Continental-Falk 125CGP Geared Power

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Every feature of design — automatic spray system of lubrication . . . proven Falk precision gearing . . . interchangeable crank throw . . . extra heavy case — all point to long life and efficiency on the job.

Manufactured by Falk, the rated capacities of the 80CGP and 125CGP afford ample range and selection to meet any demand which may be fulfilled satisfactorily by geared powers. Continental's extensive sales and service system, together with Continental engineers to supervise installation, insure complete satisfaction.

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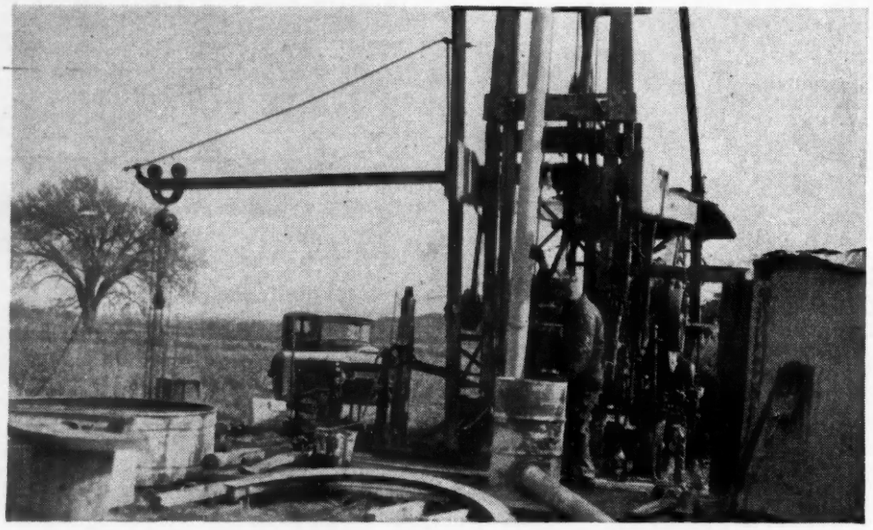

Drilling operation south of Garnet, Kansas, where a shallow shoestring is being flooded. Tight sand at 685 feet was shot with from 1½ to 2 quarts per foot of hole. The project is a five-spot, delayed, plan.

ing water for their project, and are about ready to start injection. Streeter Oil Company has the most advanced project to date, with water lines, wells and water storage ready, and a plant constructed. Centrifugal pumps handle water in volume and piston pumps are installed for pressure application. This flood is to be progressive from partial development.

The firm has seven water wells drilled and prepared. A gravel filter has been installed, graduated with coarse layers at the bottom, and fine sand at the top. Two 100 barrel treating tanks have been erected. Water volume calculations have been based upon a sand 30 to 32 feet in thickness, as determined through sampling.

Two flood projects are located at the eastern extremity of Cherokee Series production where the group of sands lifts to the surface above the Mississippi lime. The projects are in western Crawford County, in the McCune sector. The major block of the area is that of Converse Oil Company, in NE¼ 19-30s-22e. This project, under way at this time, will be of experimental importance in that the top of the sand is found at about 250 feet.

Another flood of more than relative importance is one on which water is being injected at this time. The tract is of 40 acres near Dewey, Washington County, Oklahoma. Layton sand is being flooded, and the strata is topped at about 250 feet. Keener Oil and Gas Company is doing the development. The fact that the natural hydrostatic head on a sand of this depth is only about 100 pounds per square inch, and that provisions will necessarily be made at the surface to increase this pressure, results in the establishment of problems that require particular means of solution. Both the Keener Oil and Gas Company's 250-foot experimental project, and that of Converse Oil Company to the same depth, will serve as markers for future shallow flooding.

In the Nowata area, Forest Producing Company has six water floods in operation at this time as a normal expansion program to their original project at Big Creek, northeast of Nowata. The primary acreage is still producing at this time, although production is said to be going slowly to water as the project is being carried to completion. Another Forest Producing Company project in the same area was originally intended as self-producing with water pressure application. Wells were equipped for flowing and it was not the intention of the operators to pump unless necessary.

Of the Forest projects, one is static at this time, two are highly productive and other tracts are undergoing steady development. The firm has widened their range of activity to include property adjacent to their first acreage, and have examined into the possibilities of flooding in other sections of the greater area.

Rogers County is the scene of water flood activity, with Carter Oil Company, Shell Petroleum Corporation, Phillips Petroleum Company and others having acquired acreage for flood programs. Harmon and Whitehill, Inc., who were among the first interests in the field, have expanded some of their acreage and have disposed of considerable tracts partially developed.

Departures in Operating

In one respect, York Oil Company's Greenwood County, Kansas flood is of particular interest. The firm only has one input well, this being located at the center of four producers drilled on a 660 plan. The original prospect did not consider water flooding, and it was only after production dropped to uneconomic proportions that operators turned to water.

The depth to the top of the pay in this region is 1935 to 1960 feet, the strata being Bartlesville sand. After a comparatively short time production increased to such an extent that the success of the flood appeared assured. However, water for injection became exhausted and the flooding operation was halted late last summer. At this time the flood is scheduled to be resumed.

Salt water has successfully been returned to sands to aid Oklahoma projects. This has been detrimental to input wells in some areas, but appears to be satisfactory in the instances where it is being tried in Oklahoma.

Converse Oil Company's progressive flood in 11-24n-16e, Rogers County, Oklahoma, is the scene of recent determinations of water courses through flooded sand by the use of tracers. Sodium Fluorscene was injected into water well and the produced water carefully checked to indicate water direction and volumes. Interesting results were obtained by the experiments. The color of the dye is the same as that found in many varieties of liquid soaps, and is readily traceable even in minute quantities.

SHAFFER PICTURES

Present

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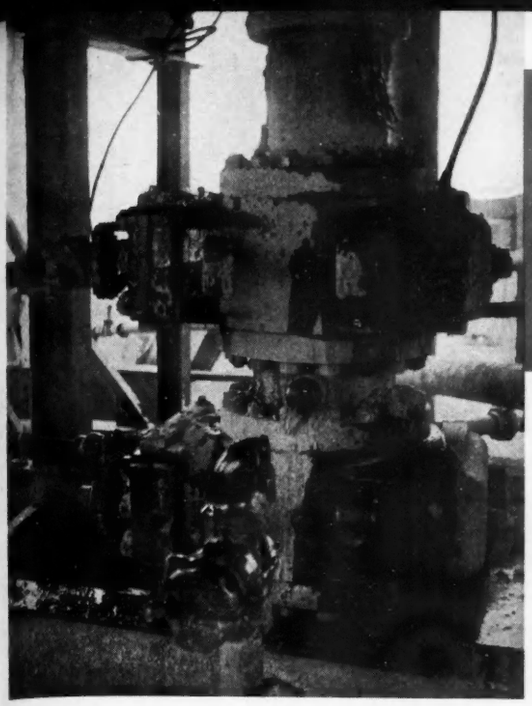

"SAFETY FIRST"

The workmen on this well and the vast investment are protected from danger of a disastrous blowout by the Shaffer High Pressure Drilling Hook-Up shown here.

RAMS & RAM RUBBERS EASILY CHANGED

In the Shaffer design it is only necessary to lift out one set of ram blocks and drop another in place after the ram assembly is practically withdrawn from the gate body. Two men can make a complete change of rams in a very short time. The rubber used in the rams is the best and toughest oil resisting stock obtainable—another feature of Shaffer Cellar Control Gates that assures long, trouble-free life and economy.

UNIVERSAL JOINT FOR REMOTE CONTROL

All danger while closing the Gates in emergencies is eliminated by placing the Hand Wheel or Pelton Wheel beyond the edge of the derrick floor. It can be put in the safest, most convenient position and connected to the Gates, the free action of the Shaffer Universal Joints insuring easy, positive operation by either the Hand Wheel or Pelton Wheel.

SHAFFER CONNECTING SPOOLS

... meet minimum space requirements, yet provide an outlet between the Gates. When the connecting spool is used the overall distance from face to face of the Gates is only 12 inches, yet enough room is provided to turn a socket wrench.

SHAFFER MUD CROSS

This unit is important with mud as well as pressure drilling. Installed below the Shaffer Cellar Control Gates, it provides a means of relieving pressure that might build up below the closed gates, or a connection to the pumps to kill the well. While drilling under pressure the Mud Cross connection is used for holding back pressure on the well.

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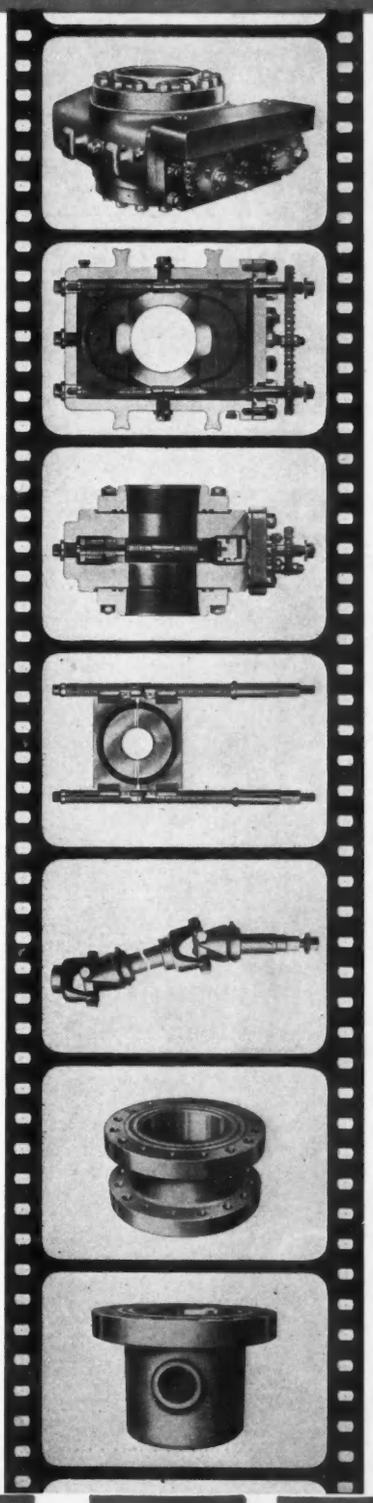
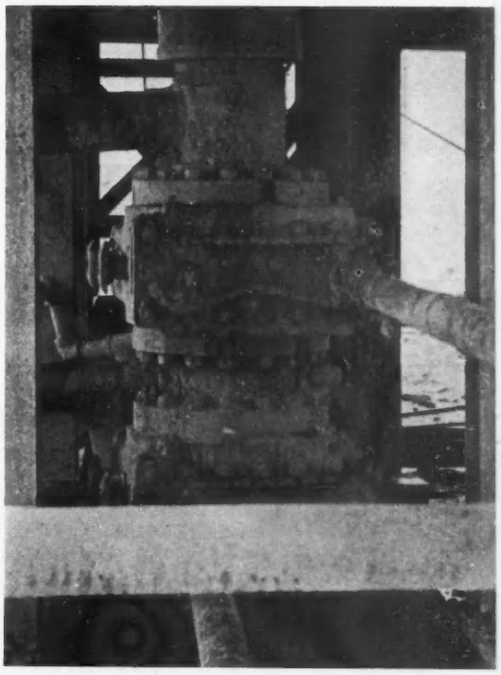


SHAFFER CELLAR CONTROL GATES

... are built to insure maximum safety in drilling high pressure wells and to provide the means to close in blowouts. They positively close and hold against the highest pressures, and are especially successful in holding extremely high pressures indefinitely after being closed.

SUCCESSFUL FROM THE FIRST . . .

In 1928 a disastrous blowout and fire suggested the idea for the Shaffer Cellar Control Gates. The first one made was successful, and since then they have been used on thousands of wells throughout the world. In this interior view—looking down—note the heavy rams which close around the pipe, and the full opening through the body which enables operations to be carried on without interference.



TWO SHAFFER CELLAR CONTROL GATES FOR COMPLETE PROTECTION

One Shaffer Cellar Control Gate is equipped with rams which close around the drill pipe while it is in the hole—(the type shown here). The lower Gate has rams which effect a complete shut-off when the drill pipe is out of the hole. Shaffer Cellar Control Gates are compact and an installation requires a minimum of vertical cellar space.

Study the specifications and illustrations starting on page 1549 of the 1937 Composite Catalog, or send for a copy of the Shaffer Catalog.

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Described in detail on Pages 1548 to 1576 of the 1937 COMPOSITE CATALOG

NUMBER OF *Wells to Go On the Pump* TO INCREASE

By
WARREN L. BAKER
Editor

Several factors point toward more wells going on the pump during the next year than in the past 12 months. Number expected to exceed 10,000.

INDICATIONS are that many wells in the United States will go on the pump during the next 12 months. In fact, pumping equipment demand in the coming period is very likely to exceed that of the past 12 months, although it was comparatively high during the latter period.

Indicating Factors

Of course it is impossible to foretell with reasonable accuracy the number of wells that will be equipped for pumping during the next year. There are too many factors that influence the ability of a well to produce naturally. However, a number of developments point to the probability that the number will be larger than in the past year. In the first place, many more wells are to be completed. At the present rate of activity, there will be more than 26,000 tests completed, of which approximately 16,000 or more will yield oil. How many of the latter number will be dependent upon artificial means for making their production is not known. But since they are not located in any single great flowing field, like East Texas a few years ago, it apparently is not improper to believe that a good number will be placed on the pump. Another factor to be considered is the number of already completed flowing wells that will be equipped with pumps. Again, it is difficult to arrive at any definite figure. However, in the past several years there have been far more wells completed than have gone on the pump. During 1936, the number of wells on the pump showed a closer approach to the total number of wells, and it is thought this trend will continue. Many of the great flowing areas surely have flowed a sufficient volume to have lost enough energy to bring about an increase in the number of wells on the pump.

Estimated Number of Wells to go on the Pump during the next 12 months.

Texas	5400 and up
Kansas	1500 and up
Oklahoma	1250 and up
California	500 and up
All other states	1350 and up
United States	10,000 and up

Despite all the uncertainties involved in estimating the number of wells to go on the pump in the future, a survey conducted by The Oil Weekly editorial department leads it to predict that there will be more than 10,000 wells go on the pump in the United States during the next year. Table 1 shows how these have been divided by areas. No consideration has been given to the amount of replacements that pump equipment manufacturers may expect to be purchased.

Texas Accounts for Half

Texas is expected to require at least one-half of the pumping equipment demand, it having been calculated that 5400 or more wells will go on the pump in this state. From records of the Texas Railroad Commission a fairly accurate check of the number of wells in this state and the number pumping is available. This information is shown in Table 2 and is divided into the major producing districts of the state. The data contained in the table is taken from proration records, which include all operations except about 1 percent in the state. During the past 12 months over 4000 wells were added to the

FAMOUS CATCHERS

Buck Ewing — Catcher with New York Giants (1883-1892)

Type "E" Tubing Catcher, with Anchor, for wells of any depth.

"Old Timers," including the late John J. McGraw, regarded Buck Ewing as baseball's greatest catcher. Pitchers could always depend on Buck to catch the ball and hang onto it. The ball was *safe* in his hands.

Similarly, GUIBERSON Tubing Catchers have become famous throughout the oil country because they insure *absolute safety* for tubing. They always catch the tubing before it has dropped 3 inches! GUIBERSON pioneered the Tubing Catcher in 1912 and today offers models which have been perfected in every detail. Note these valuable features:

AMPLE SLIP AREA. Large slips of *correct* area grip casing *without distorting casing or causing undue strain.*

AMPLE FLUID BY-PASS AREA. Despite large slips, by-pass area has not been reduced.

STEEL PARTS THROUGHOUT, insuring ample strength to support heaviest loads.

NON-FATIGUING SPRINGS OF SPECIAL STEEL. Perfected by GUIBERSON to maintain correct tension and insure dependable operation.

OTHER FEATURES. Machined, heat-treated dovetail slips fitted on all-steel head preserve true slip alignment.

A CORRECT TYPE OF CATCHER for every requirement.

GUIBERSON Tubing Catcher Anchors are designed especially for use with GUIBERSON Tubing Catchers, and have many times proven their worth in pumping wells and where tubing necessitated straightening. Anchor can be furnished with any GUIBERSON Catcher.

Though more than 100,000 GUIBERSON Catchers are in use, there is no record where a GUIBERSON Catcher which was of correct size and in good condition failed to function and prevent dropped tubing. Write for bulletins or

See GUIBERSON Section, 1937 Composite Catalog Beginning Page 711.

SEE YOUR SUPPLY STORE

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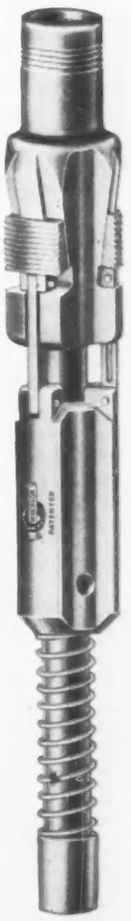

Type "B" Tubing Catcher, for wells under 4000 ft.

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BETTER BE SAFE THAN SORRY

number of pumpers. Considering that a number were abandoned and many equipped but not operated, it is hard to say how many were equipped.

Last year, the East Texas region had about 125 wells per month go on the pump or some other means of artificial lift. During the coming 12 months this area is expected to show another increase, and therefore is credited with 1850 wells in this survey, which number is more than any other district, or for that matter a larger volume than any state, outside of Texas itself. It is anticipated that the bottom-hole pressure in East Texas will continue to show a loss, and since it is near the critical stage at this time any decrease will make itself felt in the pumping market. However, many wells in East Texas are already equipped for pumping, with the exception of rods and pumps, but are still flowing. On the other hand, this practice of installing equipment before actually needed is expected to continue. Therefore, a demand for equipment that will equip 1750 wells is not considered out of line. In addition to the East Texas field proper, the East Texas district has several other fields that will boost its demand the coming year. Foremost among these is Talco, which is a ready market for pumps shortly after wells are completed. Furthermore, there may be some demand from the Texas side of the Rodessa field, and others.

South Texas Increases

South Texas is expected to continue to show an increase. During the past year nearly 400 more wells were placed on the pump than during the previous year. Consequently, it is likely that about 1350 wells will reach the artificial lifting stage in this territory. The Government Wells field of Duval County, which produces from 1500 to 3000 feet, will probably be the largest market. From 375 to more wells in this pool may go on the pump.

West Texas, which is experiencing a revival in drilling, should show an increased pumping equipment market the next year. Some of the completions during the past two years or so should be ready for artificial lift.

North Texas by all means should continue as an active pumping area. Last year more wells were placed on the pump than completed, and drilling is higher than in the past 12 months. Most North Texas wells require pumping equipment early in their life. Indications are that approximately 1000 producing wells will be completed during the coming year in this vicinity.

Other Texas regions are not so important.

Kansas has been given second rank in the number of wells that will go on the pump. This state is very active in drilling work, and most of its completions require pumping units early in their life. Indications are that slightly more than 1500 wells will be finished as oil producers during the next 12 months. It is therefore believed that about 1500 wells will go on the pump. These wells will be comparatively shallow in depth, but due to the method of proration, which is based on potentials, heavy equipment is installed so as to procure the largest potential output possible.

Oklahoma will be another large market for pumping equipment the coming year. Demand for pumping units in this area has been stimulated by revival of drilling in the shallow sand sections in the north part of the state. Secondary recovery efforts, especially water flooding, has brought a revival of shallow field activity. In addition to the demand for light equipment for the north part of the state, there will be some demand for heavy units. It has been estimated by one source that 200 wells of more than 4000 feet will go on the pump in Oklahoma, that there will be 700 from 2000 to 4000 feet in depth, and 350 from 250 to 2000 feet.

The number of wells to go on the pump in California are expected to remain approximately the same as last year, it being calculated 600 will go on the pump the next year. However, there is a tendency in this state to again operate wells that have been idle for several years, and its requirements are dependent upon this trend as well as the number of present flowing wells and new completions that will require equipment. Many of present idle producing wells have most of the necessary equipment, but replacements of a number of parts will be required.

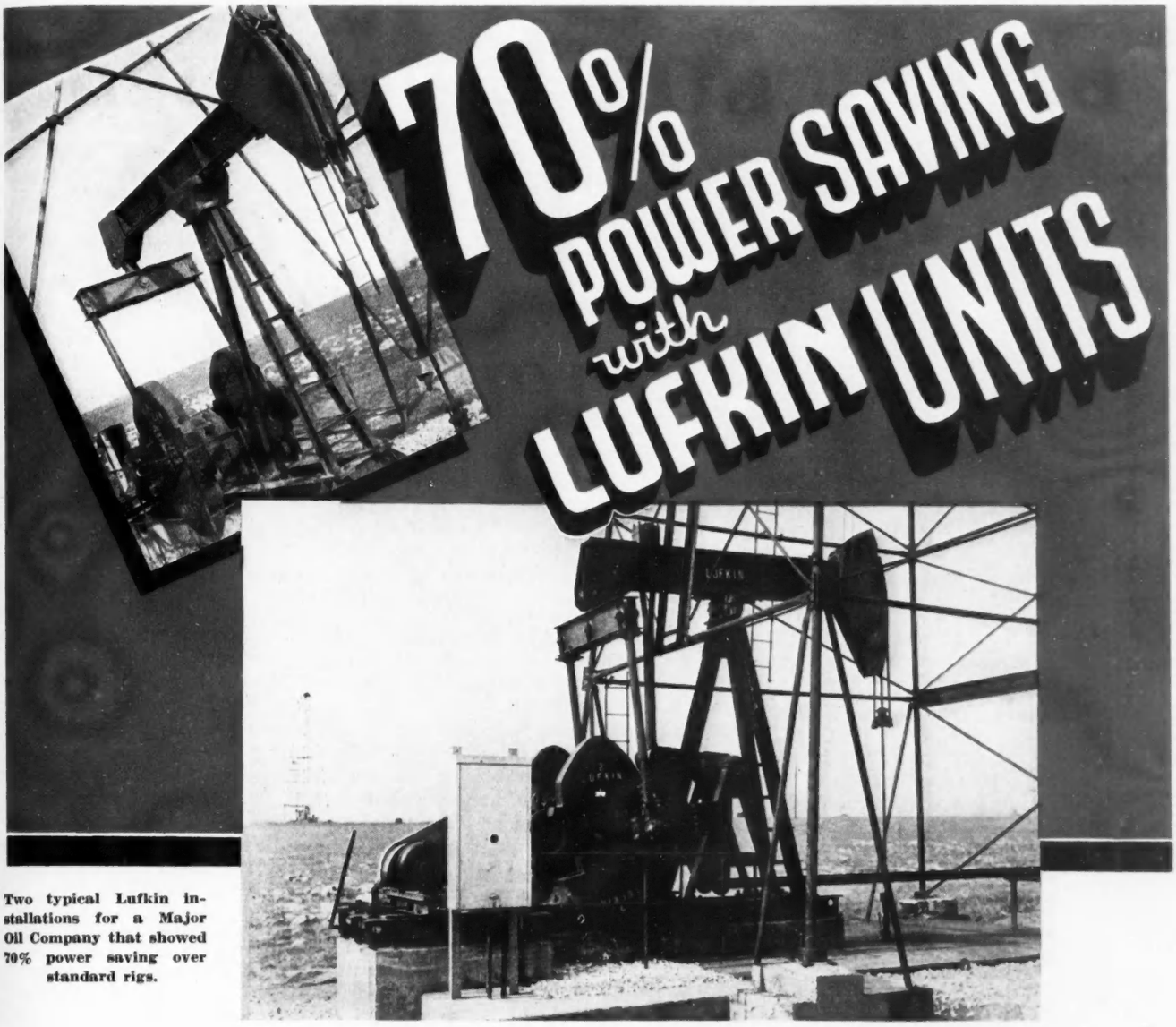
The remainder of the United States is given a group allotment of 1350 wells to go on the pump. Approximately half of these will be in the Eastern States, where about 750 producing oil wells should be completed, and practically all will go on the pump. Michigan and Louisiana should be next largest markets, followed by the Rocky Mountain states. Then there will be such states as Arkansas, which incidentally may show an increase before another 12 months has passed.

TABLE 2

Number of pumping wells in Texas compared with the total number of wells during the past two years, and estimated number to go on the pump in the next 12 months.

DISTRICT	April, 1935		April, 1936		April, 1937		Increase 1936 Over 1935		Increase 1937 Over 1936		Estimated Number To go on Pump Next 12 Months
	Number of Wells	Number Pumping	Number of Wells	Number Pumping	Number of Wells	Number Pumping	Wells	Pumping	Wells	Pumping	
Southwest	5,507	4,579	7,330	5,129	9,202	6,040	1,823	550	1,872	911	1,350
East Texas	17,187	1,251	21,023	2,708	23,276	4,273	3,836	1,457	2,253	1,565	1,850
East Central	1,669	1,295	1,696	1,328	1,760	1,371	27	33	64	43	50
Gulf Coast	3,497	1,940	4,240	2,142	4,851	2,273	743	202	611	131	125
West Central	7,263	7,074	7,376	7,100	7,740	7,313	113	26	364	213	350
West Texas	3,017	1,683	3,899	2,026	5,170	2,272	882	343	1,271	246	450
North Texas	14,821	14,710	15,138	15,014	15,605	15,568	317	304	467	554	850
Panhandle	2,275	2,045	2,804	2,604	3,148	2,994	529	559	344	390	375
Total Texas	55,236	34,577	63,506	38,051	70,752	42,104	8,270	3,474	7,246	4,053	5,400

Pumping includes agitation also.
Data from reports of Texas Railroad Commission.
Wells on the pump includes only those actually dependent on artifical means for production, and make no attempt to estimate number equipped but not operated, of which there, of course, were a large number.



Two typical Lufkin installations for a Major Oil Company that showed 70% power saving over standard rigs.

It is not uncommon for LUFKIN UNITS to show as much as 70% power saving over STANDARD RIGS . . . but it is uncommon for a Major Company to show us the figures. In eight installations, such as illustrated above, LUFKIN UNITS showed power savings up to 70% over Standard Rigs which they replaced.

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Lufkin Units are manufactured in Lufkin, Texas, by the LUFKIN FOUNDRY & MACHINE COMPANY . . . branches in Houston, Dallas, Tulsa, Los Angeles, Longview, Kilgore, Odessa, Oklahoma City, Great Bend and New York City.

LUFKIN PUMPING UNITS

Production Equipment Trend Toward Efficiency

By BRAD MILLS, Associate Editor

THE trend in production equipment during the past year was featured by improvements in conventional items, rather than by the development of new equipment of a radically changed design. A better balance between surface and underground equipment, adjustments in tolerances, and basic improvements were factors favorably affecting the operating efficiency of all types of pumping equipment. Several new equipment items were introduced during the year, but the greater number were auxiliary devices that did not employ new operating principles.

The change in underground pump diameters, improved counterbalancing equipment, more efficient prime movers, correctly tapered rod strings, and improved auxiliary surface equipment have increased the efficiency of the average well layout in the principal producing areas. Much of the surface equipment has been made more portable, and lighter where alloy metals have not reduced strength. The trend toward unitizing the bulk of surface items continues, and installation and removal time and expense have been reduced by use of a framework common to several items.

More Efficient

The demand for more efficient, rather than heavier equipment featured changes in field installations in the shallow and medium-depth producing areas. The trend was toward heavier and more rugged pumping equipment in deep fields that showed a drop in fluid level, and in several areas that originally went on the pump in an improvised manner.

Improvement in multi-cylinder gas or gasoline engines used in oil fields has been marked. This type of power has become popular in California, where natural gas is plentiful and individual well units are in vogue. The first engines of this type used were old automobile motors, the idea having been prompted by the early depression days and very low oil prices. Dozens of discarded automobile motors almost suddenly appeared in the Huntington Beach and Long Beach fields several years ago, and engineers at the time failed to agree on the importance of the step. Many of the heavy motors actually gave good service in an improvised way, and the practice soon spread to other fields. Motor manufacturers quickly picked up the cue and started development of a motor that possessed the virtues of the automobile engine, plus greater stamina and operating economy. Several manufacturers have developed multi-cylinder engines for oil field work. The trend has been toward a simple engine with the smallest possible number of working parts and one that may be serviced with a minimum expense. The conventional radiator, fan and oil circulating arrangements have been retained.

Electric motor manufacturers have kept pace with oil field requirements by supplying pumping motors with several improvements. Particular progress has been made in the improvement of the outer cases, which may be obtained in both weather-proof and explosion-proof design. The new motors also are designed to operate day after day without attention.

Improvements in pumping units proper have been directed toward a higher operating efficiency. The pumping unit of today actually delivers to the rod string a much higher percentage of available power than the unit of five years ago. Changes in reduction gears, adjustments in belt and gear drives, reduction in friction loss, development of adjustable counterbalance cranks, and use of alloy steels were featured in pumping units offered last year.

A number of changes and improvements in sucker rod specifications were noted last year, but no basic change in design was made. All sucker rod manufacturers are attempting to develop a rod for each operating condition, and because of the variation in demands and experimental work now under way, more than 40 different kinds of sucker rods are on the market. Rod manufacturers have attacked the field problems by giving the oil company rods of improved grain structure of steels with normalized upsets; joints of improved design, machined to standard dimensions and with definite tolerances; and a design that recognizes fatigue-stress limitations of steels used. A few new rods recently were developed to meet corrosive or unusual field conditions, and in several fields the new types were a distinct improvement over the former rods that gave poor service.

Numerous improvements in the design of insert type pumps have been made, with changes in toler-

ances and reduction in the average size of this type of pump having been prominent in the year's adjustments. A California producing company has been using a special 1 1/16-inch insert type pump, where a 2¼-inch pump formerly was used. This company at one time used a very tight plunger, but now uses a plunger with sufficient clearance to work freely from the beginning. The plungers used are from 1/1000 to 3/1000 inch under the nominal size of the barrel. Liners purchased are as much as 40/1000 inch under the nominal base size, this arrangement making it possible to bore worn liners to a larger size to give longer service. The liners are thus bored to 20/1000 or 40/1000 inch oversize. The plungers bought oversize also may be ground to a smaller size to fit the pumps.

Pump parts are being manufactured of metals that show the greatest resistance to corrosion, or that give greatest wear under a given condition. Corrosion-resistant metals have been developed to a high degree in an effort to manufacture valves, balls and seats that will not be affected by sulphur or salt. The use of chromium plated plungers has proved an advancement where corrosion or an abrasive action has caused trouble. The so-called "hard cast liners" of cast iron, plus a small amount of nickel and molybdenum, have increased the service life of many installations in California and Mid-Continent. All working parts of a pump are susceptible to wear from abrasive particles, and manufacturers are constantly striving to improve the hardness or wearing quality of pump parts.

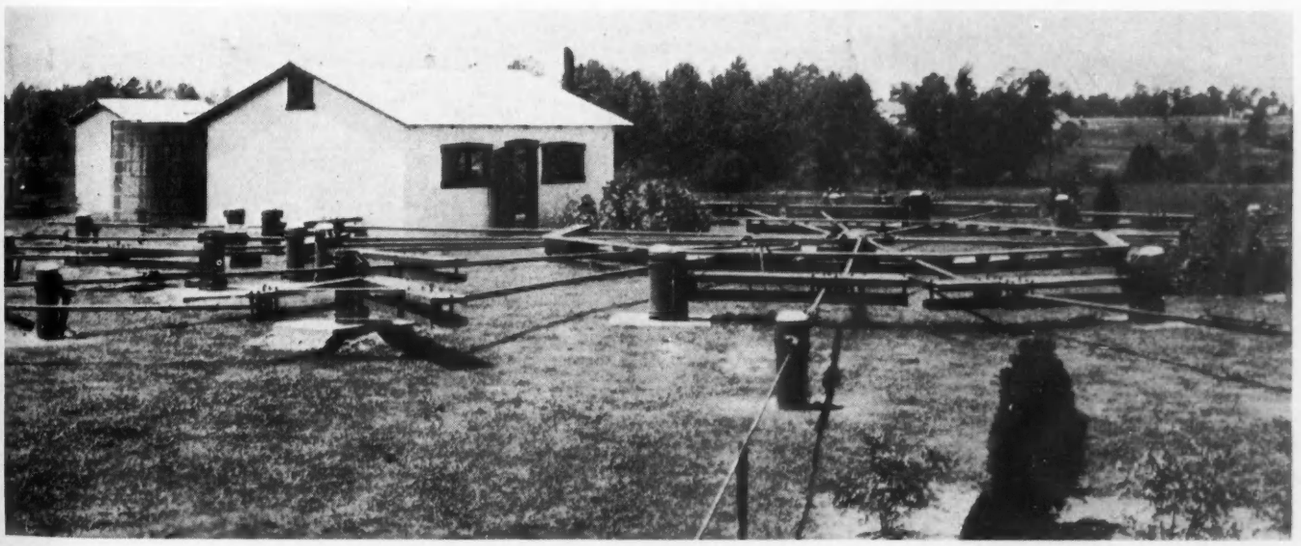
Kick-off or flow valves have been used since 1930, but refinements in the older types and development of a new type were recent equipment changes. These valves originally were developed for aiding the flow of weak wells. The first types were the "side button" model and the "ball type" design. The button type valve consisted of a semi-circular steel button attached to a piece of flat spring steel, the steel spring having been attached to a nipple at one end and to the button on the other end. The ball type consisted of a small ball in a tube having predetermined clearance for the ball, and seats at each end. The most recent development was the outside-type, spring-controlled flow valve, this type valve having a full opening for swabbing or running paraffin scrapers. These valves have been helpful in flowing weak wells in such producing areas as the East Texas field, where modified forms of gas lift have been used for three or four years.

The single and twin-cylinder gas engines have been improved to give better service to beam well operation and central pumping power plant drives. The heavy engines of this type are popular with producers who must lift oil from a considerable depth. Several engines of this type may be converted to gas or oil when a change is desired.

Back-side crank pumping equipment and accessories have been advanced in design to meet demands in shallow fields that permit pumping more than one well with a small power unit. Most of the new and improved equipment of this nature was designed for pumping one or two extra wells, but as many as four wells have been pumped with one small prime mover. The pumping of extra wells has been facilitated and even made possible in many instances by development of swing and auxiliary equipment.

In the Oklahoma City field, several companies have installed a combination of gas lift and an electrical-centrifugal bottom-hole pump. The arrangement necessitated development of several auxiliary equipment items, although the principal equipment items were not new in principle. The application was new, however. The centrifugal pump was placed in the hole near bottom and lifted the oil about 1000 feet to the annular space above a packer. It was then gas lifted to the surface with a conventional gas lift.

Development of a submersible pumping barge for use along the swampy Louisiana coast was an important feature of marine operations during the past year. This all-steel barge was modeled after the larger drilling barges, and after being towed into position is submerged in shallow water to become the foundation for a complete pumping unit. The barge rests firmly on bottom, and is adapted to use in lake or bay waters from the shallowest depths to a depth of about 12 feet. This type of pumping unit has vast possibilities in the swampy districts of Texas and Louisiana.



A geared central power installation in the East Texas field. Many units of this type have been installed in this field.

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TULSA . OKLAHOMA CITY . WICHITA . AND BRANCH STORES

MEN IN THE INDUSTRY'S NEWS

J. A. "JACK" STARKEY, who has been district superintendent for Amerada Petroleum Corporation in the Hobbs district, consisting of New Mexico and West Texas, resigned June 15 to become associated with Two States Drilling Company. He will continue to reside at Hobbs. Starkey was honored by Amerada employees by a family picnic at Amerada Park, Monument Camp. He was presented a fine watch as a token of remembrance. Starkey began his oil field career at Mexia, Texas, worked up through various oil field jobs. He was a driller for J. M. Young, drilling contractor, at Borger in 1927 when he joined Amerada Petroleum Corporation. A year later he was made farm boss at Wink. In 1931, Starkey was made superintendent at Hobbs, and upon the death of Lawrence Thurman in 1935 was promoted to the position of district superintendent.

GEORGE LYLES has opened offices in the Alamo National Building in San Antonio. He is associated in the firm of Adams & Lyles with considerable production in West, East and South Texas. The concern has offices in Lockhart, part of which is being transferred to San Antonio.

REAGAN TUCKER, geologist with Kenco Corporation, Houston, has resigned and has become geologist for the Buckingham Oil Company. He has moved to Corpus Christi, headquarters for the latter concern.

SIR JOHN CADMAN, chairman of the board of Anglo-Iranian Oil Company, of London, has been made a lord. He is one of the first oil men to occupy one of the limited seats in the house of lords, which gives him a hand in governing the British empire.

JOHN W. CHISHOLM, assistant land man for The Texas Company, has been transferred from Fort Worth to Wichita Falls for scouting duty in North Texas.

H. C. BISHOP of New York, vice president of Crystal Oil Refining Company, Shreveport, was in Fort Worth last week on a business mission. Officers of Crystal Oil Refining Company are preparing to place the company on an active basis as recent deep discoveries in Northern Louisiana have enhanced the value of its land holdings.

MELVIN CAMPBELL, assistant land man for Sun Oil Company, Dallas, spent the past week on vacation in New Orleans.

EARLY DEANE, for the past year in charge of the land, leasing and scouting departments of Conservative Oil Company, Corpus Christi, recently resigned to open offices of his own in Corpus Christi. Deane's career in the oil business goes back to the days before Smackover, where he drilled a number of producers.

MRS. DOLLY RADLER (CHARLES A.) HALL, formerly acting chief geologist for the Amerada Petroleum Corporation in Tulsa, has been named administrative geologist for the company.

E. G. "TY" DAHLGREN, chief clerk in the conservation department, Oklahoma Corporation Commission, has been appointed umpire of the Kansas Corporation Commission, succeeding T. A. Morgan, resigned. His appointment becomes effective July 1. Dahlgren joined the commission at Oklahoma City in 1931 when proration was established in the field there, working with Otto Bradford, umpire at the time, as clerk and statistical worker. Following the resignation of Mrs. I. L. Huff, Dahlgren was made chief clerk. His work along this line has established Dahlgren as one of the foremost authorities in the state today on the subject of proration. Complete records of oil operations in the state have been compiled by him, beginning with the Greater Seminole area, where proration was first established in the Sooner State. Dahlgren also has assembled a library on proration, engineering and production which rates second to none in its completeness. Dahlgren will move to Wichita where he will make his home.

LOUIS H. SHEARER, of Texas University and Texas A. & M. College, is recent addition to the field staff of Core Laboratories, Inc. Shearer was formerly a research engineer for Freeport Sulphur Company, and has also been with the Texas Railroad Commission. At the University of Texas, he carried on studies of oil sands in connection with well spacing.

CHESTER M. CREBBS, general agent of Mene Grande Oil Company, formerly Venezuela Gulf Oil Company, at Maracaibo, Venezuela, is spending a vacation in the United States.

J. B. MERRITT, field superintendent for Honolulu Oil Corporation at Elwood, California, has been transferred to Midland, Texas, where the company has a large lease and some shut-in production. It is likely these shut-in wells will be placed on production, due to better demand. Merritt is to be succeeded at Elwood by A. G. Fisk, Jr.

JOHN F. DODGE, professor of petroleum engineering at the University of Southern California, is on an extended trip around the world. Featured in his itinerary, prior to returning next February, are several months of study in the oil fields of Borneo, Sumatra, and the interior of India. A study of foreign drilling methods will also be made in China and Japan. During his absence his classes will be conducted by Ralph McGoey, petroleum engineer of Union Oil Company, in classes featuring the industry. Stanley Harold, consulting engineer, will also give instruction in the principles of oil and gas production during the fall quarter.

DENYS CADMAN, son of Lord John Cadman, chairman of the board of Anglo-Iranian Oil Company, has returned to Mexico City after a visit with Mr. and Mrs. Burke Baker, his father-in-law and mother-in-law, in Houston. Young Cadman is with Huasteca Petroleum Company.

H. D. DAVIDSON, formerly deputy conservation officer of the Oklahoma Corporation Commission, has been appointed chief clerk in the conservation department. He succeeds E. G. Dahlgren, who resigned to become umpire of the Kansas Corporation Commission. Davidson has worked in practically every division of the conservation department, and is looked upon as competent to handle his new responsibilities.

THEO. A. MORGAN, director of oil conservation in Kansas since January 1, 1934, tendered his resignation to E. E. Blincoe, chairman of the state corporation commission last week. It will become effective as of July 1. Morgan will return to private business.

SHERMAN NELSON, head of the recently formed Hantho-Nelson, Inc., has moved offices from Luling to San Antonio. The company, operating in the Austin chalk area, now maintains offices at 1617 Alamo National Building.

L. F. McCOLLUM, director and geologist with Carter Oil Company, Oklahoma City, was a visitor to San Antonio last week.

H. B. DUDLEY, representative of Petroleum Producers Company, Wichita Falls, has established offices in San Antonio. His residence is 123 North Drive.

L. L. RECTOR of Rector Well Equipment Company, Fort Worth, Texas, together with Mrs. Rector and son Dick, are vacationing on the Gulf Coast.

W. J. HEALEY, Healey Petroleum Corporation, Bradford, Pennsylvania, last week was elected to the board of directors of the Pennsylvania Grade Crude Oil Association, succeeding E. C. Emery, Minard Petroleum Company, Bradford.

EARL DANIELS, general sales manager, The Hydril Company, Los Angeles, is in Houston for about ten days on a combined business and pleasure trip. On leaving Houston he expects to make a trip through Oklahoma and Kansas, returning to California visiting the Rocky Mountain oil fields on the way.

CHARLES MILLION, who was with Wichtex Oil Company in the Wichita Falls district for several years, has recently gone with H. F. Wilcox Oil & Gas Company in the capacity of a scout. He will continue to make his headquarters at Wichita Falls.

R. C. SANDIDGE, formerly with the Gulf Oil Corporation, Fort Worth, has moved to San Antonio and has opened a consulting paleontological office in the Alamo National Building.

GRADY KIRBY, San Antonio, consulting geologist, is in Illinois, where he is doing geological work.

GEORGE R. PINKLEY, San Antonio geologist, is vacationing in Oklahoma. He is the representative for Fohs Oil Company in Southwest Texas.

GEORGE S. BUCHANAN was the speaker at the June 17 meeting of the Houston Geological Society, discussing the Cheyneville Oil fields, Rapides Parish, Louisiana, and its relation to the areas of mother salt deposition.

GEORGE B. WHITE, chairman of the board of The Whitex Company, San Antonio, is in Boston and will shortly go to Europe to spend the summer.

ALVIN HOPE, with Rowan & Hope, Inc., drilling contractor of San Antonio, has returned from a trip to Mexico City.

PROF. WILLIAM A. IRWIN, economist of Washburn College, was the speaker at the annual meeting of the Engineers Club of Tulsa, held June 14. His subject was "Lights and Shadows of the Business Situation."

JOE V. HAYWOOD, with Carter Oil Company at Wilson, Oklahoma, left last week for Carapito, Venezuela, where he will be employed in the production department of Standard Oil Company of Venezuela.

HAROLD J. WILKINS, secretary and treasurer of Compania de Gas y Combustible Imperio, S. A., has returned to his headquarters at Tampico, Mexico, after spending a vacation in New Orleans.

GEORGE M. NANCE, JR., accounting department, Mene Grande Oil Company, Maracaibo, Venezuela, is spending a vacation with relatives in Texas.

FRANK BERNARD CROTTY, 22-year old son of John T. Crotty, Houston, president of Republic Supply Company, was killed in an automobile accident June 15.

MIKE GRIFFITH, who has been general manager of Plymouth Oil Company in South Texas, has been elected a vice president. He will also continue as general manager.

FRANK C. KELTON has joined Core Laboratories, Inc., of Dallas. Kelton, a graduate of Johns Hopkins University, will divide his time between design work for new portable laboratories and research on interpretation of core analysis.

Pennsylvania Meet

[*Continued from Page 14*]

the disaster which lies ahead. There must be understanding, general recognition of the present and possible effects of taxes. And finally, there must be concerted action to correct inequities and evils. Analysis, understanding, action! Is there not here a possibility that the petroleum industry, which already has done so much for this country, could make additional gifts in the line of restoration of sanity and reason to such taxation as may prove necessary?"

Discuss Lowering Viscosity

W. Floyd Clinger, Clinger Oil & Gas Company, Tidioute, Pennsylvania, described the application of heat to sandstone to lower the viscosity of the oil. He discussed experiments with steam, steam-heated air, the lowering of electric heating elements into the input well in the manner of a giant combustion chamber, and firing a gas and air mixture in the input well, thereby transporting the heat to the production well. "It seems reasonable that if the viscosity could be lowered the oil would release itself more readily from the sands to which it is attached and, if pressure is applied, move with more celerity toward the producing well."

"When you get into such an operation as I have suggested, your troubles are likely to be complicated," Mr. Clinger continued. "The operators who are experimenting with these methods realize that there is danger of explosion so that the heating process must be closely controlled. They realize that there will be corrosion of tubing—we may be using brass or copper one of these days. And there are products of combustion which must be accounted for. The oil may be cracked or the sand fused. But if far-sighted engineers can foresee these obstacles, they may also surmount them. And the world-wide cycle of man's attack on the forces of nature may be repeated in the next few years in the Pennsylvania fields."

Rosaire president Subterrex and Harkins of Independent

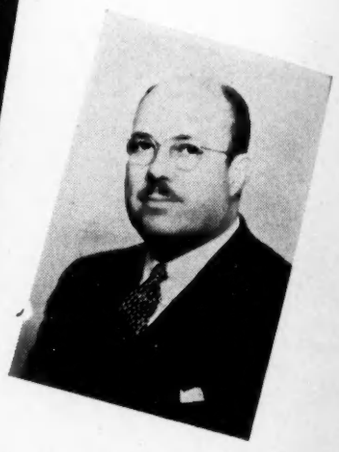
An explanation is herewith offered in connection with the article published in The Oil Weekly of June 14, 1937, page 70, entitled "Exploration by the Reflection Seismograph in the Gulf Coast of Texas and Louisiana."

The article was written by E. E. Rosaire, who was then president of Independent Exploration Company, Houston.

At present, however, Dr. Rosaire is no longer associated with Independent Exploration Company, but is head of the geophysical company, Subterrex, at Houston.

Independent Exploration Company is headed now by T. I. Harkins, president. He was vice president of that company before advancing to the presidency.

SPEAK AT FINDLAY'S GOLDEN CELEBRATION OF OIL AND GAS



Several well known oil and gas executives will speak and participate in Findlay's Golden Celebration of Oil and Gas, which will take place during the entire week of June 20. C. I. Weaver, to the extreme left, will speak at the dedication of the monument at the site of the Karg well, the largest gas well ever drilled in northern Ohio. He is president of The Ohio Fuel Gas Company.

R. W. Gallager, of Standard Oil Company of New Jersey, and past president of the American Gas Association, is shown second from the left. He will speak at the dedication of the monument at the site of the Oesterlen well, the discovery well which opened up the rich and productive northern Ohio oil fields.

Axtel J. Byles, president of the American Petroleum Institute, second from the right, will be the principal speaker at the dedication of the Oesterlen well.

J. E. Moorehead, extreme right, is executive secretary of the Pennsylvania Grade Crude Oil Association, and will be the principal speaker at the Old Timer's Banquet on June 23.

Markets Stable

DESPITE LOWERING OF PRICES TO GASOLINE DEALERS

ALTHOUGH there has been much adverse criticism of the recent reductions of gasoline prices to dealers, the markets throughout the industry so far have remained stable, and the fears of generally lower prices have not materialized.

It was believed by some that the lower prices to dealers might lead to price cutting at the service stations, which in turn might drag down the prices at the refineries, and eventually cause a lowering of crude oil prices, or at least prevent a crude advance that otherwise might occur.

Late last week, however, the markets had shown little indication of fulfilling all those dire possibilities, as prices remained generally unchanged at the service stations, the refineries, and the wells.

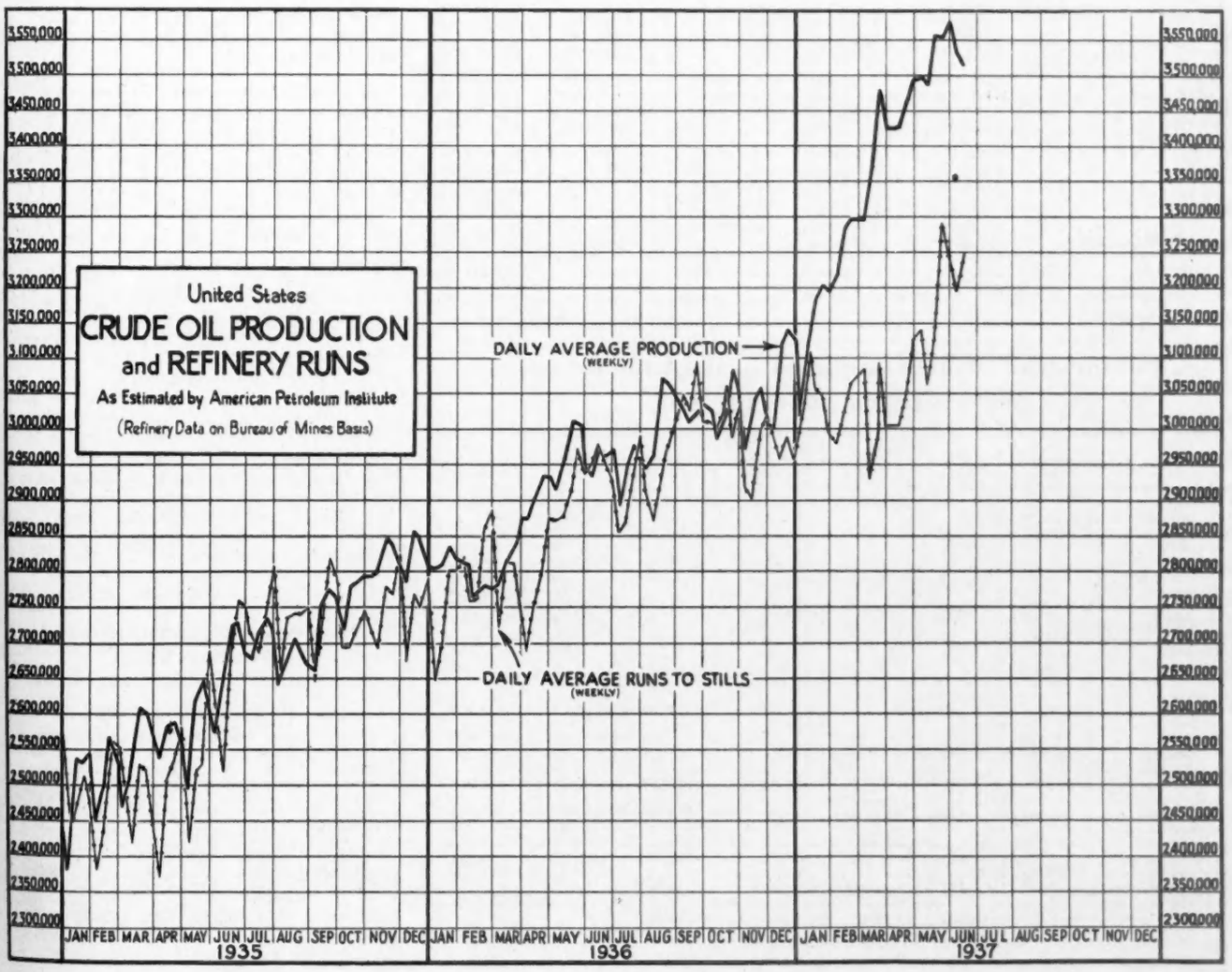
The effect of the price revision has been to allocate to the dealer a larger margin of profit than formerly, and so far the dealers generally have kept this advantage, although it remains to be seen whether or not they will relinquish a part or all the added margin by reducing prices to the public.

In so far as open market sales are concerned, the refiner still occupies the same position as formerly, since spot tank car prices have remained unchanged. But there has been automatically a reduction in the net-back on gasoline to Mid-Continent refineries supplying jobbers under marginal contracts.

Refiners Absorb Cut

Under such contracts, the refiner guarantees to supply the jobber at a specified margin under the normal prices to dealers. It is stated that under many of such contracts lately, the refiner agrees to supply the jobber at prices 2 cents a gallon below the prevailing prices to dealers. Thus the reduction of the prices to dealers automatically lowers the prices received by the refiners supplying the jobbers under the contracts.

Under the present prevailing prices to the dealers, following the recent reductions of ½ to 1 cent a gallon, and with service station prices unchanged, the dealer has a spread of 4 cents a gallon between his buying and selling prices; the total spread between refinery and



service station price being 6 cents a gallon, instead of 5½ cents as before.

The reduction of prices to dealers was initiated June 9 by Standard Oil Company (Indiana), which applied the change throughout the wide territory in which it operates. The tank wagon and dealer prices were reduced from ½ to 1 cent a gallon.

Socony-Vacuum Oil Company, Incorporated, effective June 11 similarly reduced its tank wagon gasoline prices ½ cent a gallon in eastern Massachusetts and Rhode Island, where the price situation has been unsettled lately.

Refiners Worried

What the eventual outcome of the gasoline price revisions will be remains conjectural. But there is considerable anxiety that the reductions ultimately will have an unfavorable effect on the crude oil market. For refiners are penalized, so far, under the change, and are asserting that if they must permanently absorb the reduction, through lower tank car prices, then they must be compensated by being enabled to buy their crude oil at lower prices.

Complete table of prices paid for crude oil at the well in principal fields will be found on page 70, The Oil Weekly, June 7, 1937. Hereafter this schedule will appear only in the first issue of each month.

Producers Less Optimistic

Meanwhile, producers are similarly concerned, as they have been for some time hoping for a general advance in crude oil prices, and they fear this changed situation will forestall the hoped-for increase, which they declare is needed to compensate for increased wages and costs of materials.

The gasoline situation consequently has greatly reduced previous general optimism over the market outlook, and talk of a possible early general advance in crude postings has diminished.

Tank Car Prices Same

Although it has been generally expected that the previous steadiness of the gasoline tank car market would be replaced by unsteadiness, following the tank wagon price reduction, there has not occurred yet any marking down of the tank car prices on open market sales. However, jobber purchases in the open market last week were relatively light, as there was apparently some resistance to the unchanged prices.

There remains considerable concern over the possibility of open market buyers being able to buy at lower prices in tank wagon from contract jobbers than in the open market. Such a situation is not unprecedented.

Although there were some reports of price shading last week, actual sales at less than the established prices could not be confirmed.

Mid-Continent Prices

The prevailing prices late in the week therefore appeared to range about as follows for U. S. Motor gasoline f.o.b. Oklahoma refineries: 5⅛ to 5¼ cents a gallon for the 62 octane and below, 5½ to 5⅝ cents for the 63 to 67 octane, and 6⅛ to 6¼ cents for the 68 to 70 octane material.

Corresponding prices in the Chicago market were: 5 to 5¼ cents, 5⅜ to 5½ cents, and 5⅞ to 6⅛ cents.

In East Texas the 60-62, 400 end point gasoline was priced as previously at 5¼ to 5⅜ cents a gallon.

Kerosene prices similarly were unchanged, ranging at Oklahoma refineries from 4¼ to 4⅜ cents a gallon for the 41-43 water white grade, and from 4⅜ to 4½ cents for the 42-44 water white grade; while in the Chicago market prices on both grades were one eighth-cent a gallon under those prevailing in Oklahoma.

Weekly Trends of United States Production and Stocks

(Figures American Petroleum Institute, except Crude Stocks, Bureau of Mines)

WEEK ENDED	Crude Oil Production (Barrels Daily)	Crude Runs to Stills (Barrels Daily)	Crude Oil Stocks (Barrels)	Gasoline Stocks (Barrels)	Gas & Fuel Oil Stock (Barrels)
January 2, 1937	3,121,400	3,030,000	287,659,000	62,661,000	106,330,000
January 9	3,117,800	3,110,000	286,912,000	65,402,000	105,971,000
January 16	3,184,650	3,045,000	286,044,000	66,559,000	104,841,000
January 23	3,205,150	3,055,000	285,211,000	68,180,000	103,441,000
January 30	3,194,050	2,995,000	285,384,000	69,540,000	102,078,000
February 6	3,220,750	2,980,000	286,116,000	70,535,000	101,136,000
February 13	3,286,050	3,020,000	286,158,000	73,585,000	100,735,000
February 20	3,295,950	3,065,000	287,574,000	74,798,000	99,391,000
February 27	3,296,100	3,085,000	288,121,000	78,786,000	99,534,000
March 6	3,298,800	2,930,000	289,611,000	80,102,000	99,115,000
March 13	3,372,850	2,985,000	290,613,000	81,236,000	98,964,000
March 20	3,448,150	3,095,000	291,555,000	81,623,000	97,287,000
March 27	3,431,300	3,060,000	293,587,000	*83,538,000	96,591,000
April 3	3,422,350	3,005,000	297,374,000	83,157,000	95,805,000
April 10	3,426,300	3,005,000	297,468,000	82,579,000	94,581,000
April 17	3,463,550	3,055,000	298,932,000	82,703,000	94,472,000
April 24	3,496,400	3,125,000	300,737,000	82,303,000	94,100,000
May 1	3,497,450	3,140,000	303,249,000	81,407,000	94,291,000
May 8	3,489,200	3,065,000	304,148,000	81,469,000	94,874,000
May 15	3,551,950	3,135,000	305,365,000	80,378,000	95,316,000
May 22	3,550,450	*3,290,000	304,971,000	79,827,000	95,111,000
May 29	*3,573,000	3,245,000	306,445,000	78,758,000	96,139,000
June 5	3,538,150	3,195,000	307,223,000	77,494,000	97,402,000
June 12, 1937	3,515,900	3,250,000	.....	76,996,000	98,158,000
June 13, 1936	2,971,400	2,975,000	312,543,000	70,668,000	103,999,000

*All-time peak.

Summary of Wells Completed in the United States Week Ending June 19, 1937

	Completions	Oil Wells	Gas Wells	Failures	Initial Production	Total 1937	Total this Date 1936
Alabama	....	....	....	....	.....	1	2
Arkansas	....	....	....	....	.....	37	42
California	41	37	....	4	15,985	632	501
Colorado	....	....	....	....	.....	6	5
Florida	....	....	....	....	.....	....	.....
Illinois	15	9	1	5	2,894	57	4
Indiana	....	....	....	....	.....	56	110
Kansas	61	46	1	14	54,955	1,148	717
Kentucky	7	4	1	2	54	110	117
Louisiana	16	11	1	4	6,467	374	495
Michigan	23	22	1	....	11,744	399	354
Mississippi	....	....	....	....	.....	6	2
Montana	5	5	....	....	515	69	.....
Nebraska	....	....	....	....	.....	....	59
New Mexico	12	12	....	....	10,968	329	257
New York	1	....	....	1	.....	6	.....
Ohio	47	22	12	13	425	676	876
Oklahoma	64	44	3	17	24,519	1,465	1,296
Pennsylvania	2	....	....	2	.....	78	.....
Texas	305	241	10	54	427,276	6,910	5,768
Utah	....	....	....	....	.....	....	.....
West Virginia	18	12	6	....	78	414	336
Wyoming	....	....	....	....	.....	52	24
Total this week	617	465	36	116	555,880	12,825	10,965
Total last week*	598*	423*	35*	140*	538,042*	....	.....
Total this year	12,825	8,853	1,040	2,932	10,853,533	....	.....

* Revised.

Comparison of Permits Granted For New Wells

STATE	Week Ending June 19	Total this Mo.	Total this Year	Total this Date Last Year	1936 Year Total
Arkansas	9	17	89	50	103
California	44	108	741	447	1,054
Louisiana	50	72	572	575	1,107
Kansas	56	165	1,254	831	1,873
Michigan	28	90	475	328	762
Oklahoma	59	199	1,444	1,426	2,594
Texas	487	1,117	8,680	6,888	15,582
Total	733	†1,768	13,255	10,545	23,075

†Revised

Again on Increase

LEADING PRODUCING STATES UP 68,700 BARRELS DAILY

UNITED STATES crude oil production began increasing again last week, following two weeks of declining output, as all of the six leading producing states except Oklahoma showed gains.

Averaging 3,507,350 barrels daily, the production for the whole country was 68,700 barrels a day greater than in the previous week and 141,350 barrels a day above the daily average recommended for this month by the United States Bureau of Mines.

Texas Up 49,800 Barrels

Texas last week averaged 1,383,100 barrels a day, or 49,800 barrels a day more than in the previous week and 29,100 barrels a day more than the bureau estimate of demand.

Kansas production was up 3,725 barrels at 194,350 barrels daily, and exceeded the federal recommendation 3,650 barrels a day.

Louisiana showed an increase of 7,575 barrels in averaging 253,400 barrels a day, and was 1,400 barrels above the federal allocation.

California output was up 4,000 barrels at 662,000 barrels daily, which was 76,100 barrels a day more than the indicated demand.

New Mexico production last week averaged 114,400 barrels a day, 100 barrels more than in the previous week, and 12,400 barrels a day more than the Bureau of Mines estimate of market requirements.

Oklahoma registered a decrease of 8,625 barrels, average 632,200 barrels a day, or 6,900 barrels daily more than the indicated demand.

TEXAS OIL TAXES

No new levies now hope of the industry

Austin.—Hopes of the oil industry that no new taxes will be necessary for state governmental purposes rose appreciably this week when the Texas Old Age Assistance Commission announced that there was no "immediate crisis."

Early in the week the Governor had said there would be a special tax session in August. However, after receiving the report from pension department auditors, he said the session "would not be called before September."

While there are no reliable estimates of the condition of the State Treasury, in view of this development it was not altogether improbable that all new taxes could be avoided.

The State Comptroller is now collecting data upon the fiscal condition of the state for the use of the Automatic Tax Board but this data will not be completed until July 1 or later. Until that time it cannot be ascertained with any degree of reliability just how much more has been collected due to general improvement in economic conditions than had been anticipated.

After more definite figures are obtained, the Governor may feel that no taxation at all is justified. On the other hand, if the revenues are not sufficient to meet the ordinary needs and the generous increases voted by the regular session, the Governor will not hesitate at calling one or even two special sessions. The preponderance of evidence now available is that a tax session will be called.

United States Crude Oil Production

Estimates Compiled by The OIL WEEKLY

DISTRICT OR STATE	Bureau of Mines Recommendation (Daily in June)	ACTUAL PRODUCTION: BARRELS DAILY FOR WEEK ENDING June 19	June 12
TEXAS—			
Texas Panhandle	.....	75,700	72,800
North Texas	.....	71,600	68,400
West Central Texas	.....	33,000	31,500
West Texas	.....	193,600	189,500
East Central Texas	.....	120,900	109,800
East Texas Field	.....	464,800	463,800
South Texas	.....	228,800	214,300
Texas Gulf Coast	.....	194,700	183,200
Total Texas	1,354,000	1,383,100	1,333,300
OKLAHOMA—			
Oklahoma City	.....	142,950	168,575
Seminole Area	.....	126,175	112,175
Crescent	.....	9,675	9,500
Lucien	.....	15,750	15,600
Fitts	.....	97,900	84,225
Edmund	.....	20,250	20,750
Moore	.....	15,250	14,250
Others	.....	175,600	215,750
Total Oklahoma	625,300	632,200	640,825
KANSAS—			
Ritz-Canton	.....	5,575	5,675
Chase	.....	7,075	7,925
Hollow-Nikkel	.....	2,900	2,975
Sedgwick	.....	4,325	4,350
Burrton	.....	14,250	14,375
Lorraine	.....	4,475	4,100
Russell County	.....	28,300	27,350
Silica	.....	22,650	22,225
Others	.....	104,800	101,650
Total Kansas	190,700	194,350	190,625
LOUISIANA—			
North Louisiana	.....	82,000	78,125
South Louisiana	.....	171,400	167,700
Total Louisiana	252,000	253,400	245,825
ARKANSAS	28,300	28,400	29,075
CALIFORNIA—			
Long Beach	.....	60,500	60,000
Santa Fe Springs	.....	45,000	45,000
Huntington Beach	.....	38,000	38,500
Dominguez	.....	26,000	24,800
Inglewood	.....	16,500	16,200
Ventura Avenue	.....	34,000	35,000
Seal Beach	.....	9,000	9,000
Midway-Sunset	.....	75,000	77,000
Elwood	.....	9,200	9,300
Kettleman Hills	.....	81,000	78,700
Mountain View	.....	18,000	18,500
Playa del Rey	.....	9,000	9,000
Wilmington	.....	43,000	41,000
Others	.....	197,000	196,000
Total California	585,900	662,000	658,000
MOUNTAIN STATES—			
Wyoming	51,000	54,300	51,400
Montana	15,400	17,400	15,300
Colorado	4,800	3,600	3,500
Total Rocky Mountain States	71,200	75,300	70,200
NEW MEXICO	102,000	114,400	114,300
EASTERN STATES	118,200	120,800	122,200
MICHIGAN	38,400	43,400	44,300
Total United States	3,366,000	3,507,350	3,438,650

IN THE

Financial Field

Oil shares follow market slump as general business declines.

* * *

Expect proposed depletion regulation change to be defeated.

ALTHOUGH oil company stocks have been favorites among securities in recent months, they suffered materially last week, when the market as a whole sank to the lowest level this year.

Nevertheless, some of the oil shares performed comparatively well even under the general depressed conditions.

Within the past two weeks there has been evidence that business and commerce have entered a period of recession. In various lines activity has diminished.

There is a wide variation of opinion, moreover, as to how long the trade lull will continue. It has been generally assumed, heretofore, that the recession will prove only temporary, but in view of the sharp set-back last week in the stock market, it appears that considerable doubt has arisen, and that at least some traders and investors fear the present recession may prove of more than temporary duration.

Oil Industry Position

The favor of oil company stocks in recent months has been based on the exceptionally good situation in the industry. Oil consumption has been running at all-time record levels, and the markets have been comparatively stable, despite a temoprary period of overproduction of crude oil in the earlier portion of this year.

The large volume of business and the comparatively favorable prices have combined to afford oil companies exceptionally favorable earnings so far this year. Furthermore, the market remains stable, and prices are comparatively good, and it is indicated that the earnings will continue relatively high during the rest of this year.

The future course of oil company stock prices naturally will depend largely on the action of the general market. Concerning the general trend henceforth, there is, of course, much difference of opinion. Many believe that the reaction of the past two months, involving a large decline, has amply discounted the possible trade lull that may be impending.

As regards the oil company shares, as a group, they undoubtedly are in a favorable position; and, if and when the general market begins moving upward, it is to be anticipated that the oil shares will show exceptional strength. The favorable position of the industry and its promising outlook are the basis for this prospect.

It is indicated that during the recent decline oil company shares have been substituted in some cases for stocks in other industries, through switching by traders and investors.

Continuing to make oil stocks more attractive than some other securities is the persisting hope of higher crude oil prices this summer. It is still felt by many that crude prices will be advanced further with the increases extending to California and the Mid-Continent.

There is considerable hope among oil companies, as well as mining companies, that Congress will not make the proposed change in tax provisions, under which companies in these groups henceforth would be prohibited from making deductions for depletion of properties, in making out income tax returns. Heretofore, these natural resource industries have been permitted tax-free depletion allowances. The oil and mining companies are actively fighting the revision at Washington, and it is indicated that they have a good chance to defeat the proposed move.

If oil companies should henceforth be denied the privilege of making the tax-free depletion deductions, after charging off the costs of their properties, some concerns would have twice as much taxable income, it is stated. It has been proposed that these deductions not be permitted after a company has recovered the cost of the property. But in the case of oil companies, it is contended that numerous dry holes are drilled, and that the proposal to discontinue the depletion deductions consequently would be unfair. However, treasury representatives reply that unproductive exploration may be charged off as business expense, which is deductible from taxable income.

Socony-Vacuum

Socony Vacuum Oil Company, Incorporated, has indicated that it will continue its program of making large capital expenditures. The company last week sold $75,000,000 of debentures, direct to five life insurance companies. It is understood that approximately that sum will be spent by the company this year in capital expenditures. Such expenditures in 1936 totaled approximately $76,000,000. The debentures were priced at 98, will bear 3½ percent interest, and will mature in 18 years.

Socony Vacuum Company formerly obtained much of its needed funds for expansion by withholding material portions of its earnings. But this former method is penalized under the present federal taxes on undistributed profits.

Anglo Iranian

Anglo Iranian Oil Company, Ltd., has reported for the year 1936 profit of £6,123,469 compared with £3,519,183 in 1935.

Cosden Petroleum

Of the 154,797 shares of common stock offered under the reorganization plan, the stockholders of the Cosden Petroleum Corporation subscribed to 140,905 shares. The shares were offered by Carl M. Loeb & Company and B. H. Roth & Company, of New York, as underwriters of the plan to raise new working capital for the new company.

El Paso Natural Gas

El Paso Natural Gas Company (Delaware) and subsidiaries for the 12 months ended April 30, 1937, reported net income of $1,363,575, after usual charges. This compared with $580,373 in the previous 12 months.

Rio Grande Valley

Rio Grande Valley Gas Company has reported for the first quarter of 1937 a net profit of $48,842, after usual deductions.

Royal Dutch

Royal Dutch Company, a holding concern, for 1936 reported net income

Houston Oil Field Material Co., Inc.

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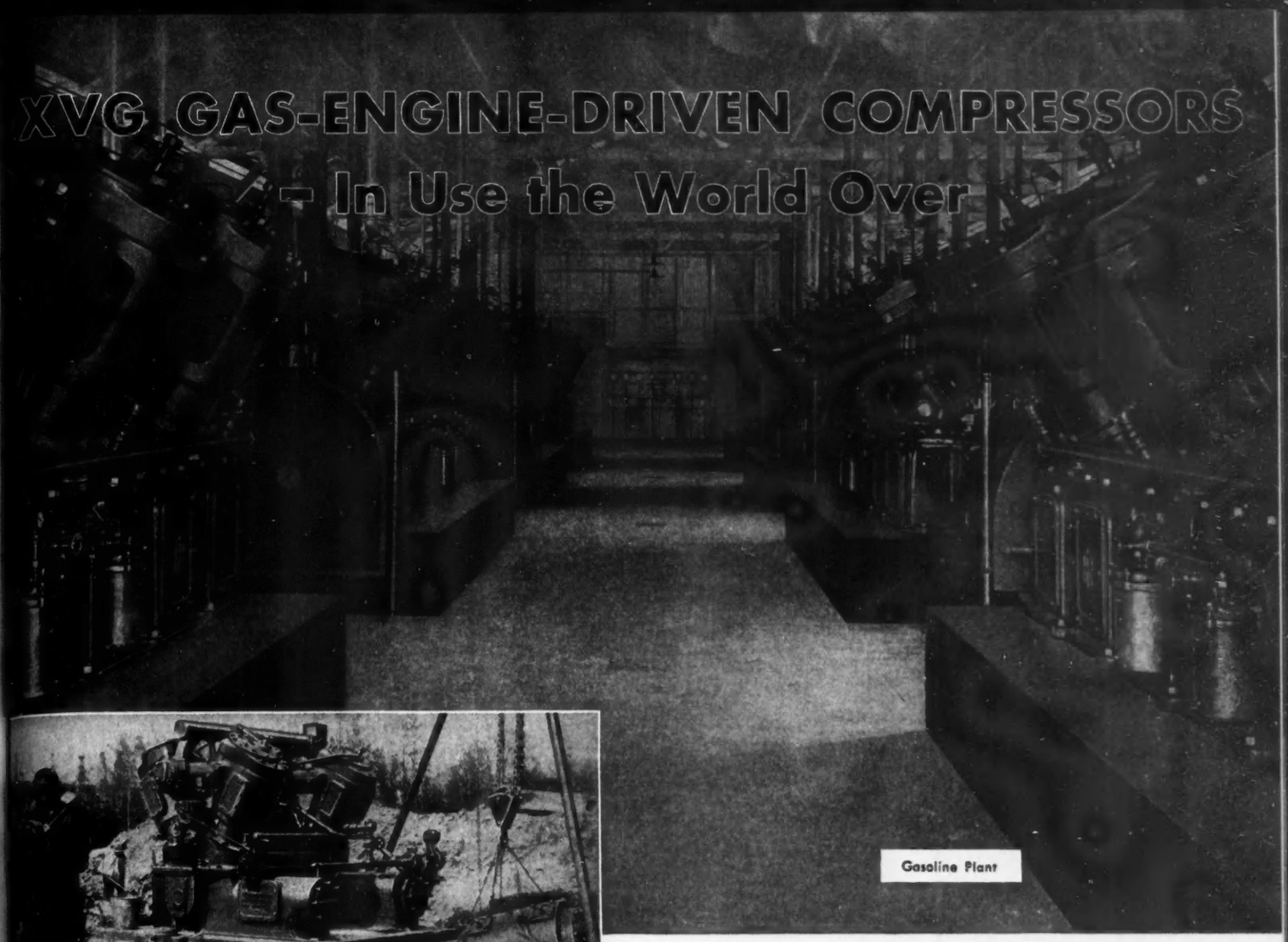
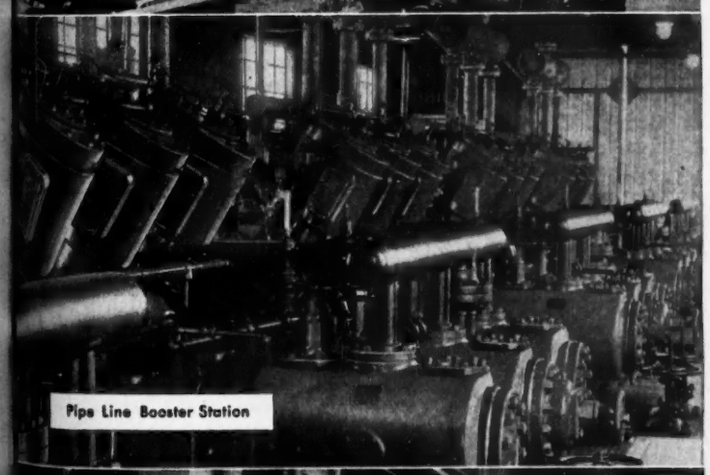
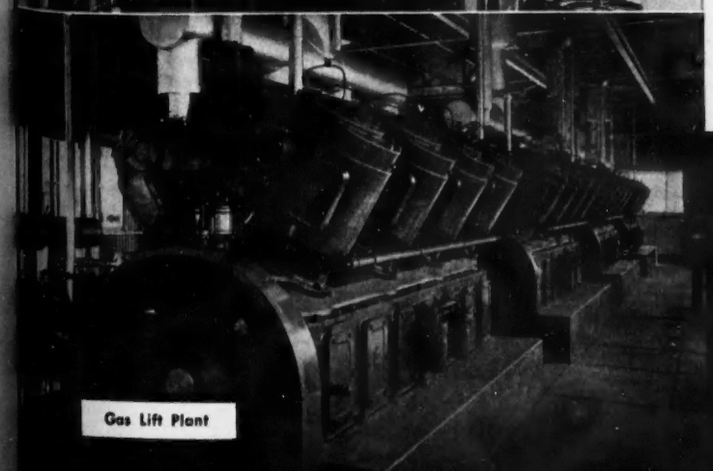


Gasoline Plant

Erection of Oil Field Plant



Pipe Line Booster Station



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of 84,866,253 florins, after taxes, interest, etc. This compares with profit of 54,279,181 florins in 1935. The 1936 profit, after dividends on 4 percent preferred stock, was equivalent to 16.84 percent on ordinary stock, compared with 10.76 percent in 1935.

Shell Transport

Shell Transport & Trading Company, Ltd., has reported for the year 1936 net profit of £5,983,456, after expenses, and other charges. That was equivalent, after 5 percent first preferred and 7 percent second preferred dividends, to 21.5 percent on ordinary stock outstanding at the end of the year. It compared with profit of £5,021,246, or 17.5 percent on the ordinary stock in 1935.

In the Shell company report there was comment on the further improvement in general conditions and it was stated that the accompanying increase in demand for petroleum products has been balanced by increasing production.

Tide Water Associated

Tide Water Associated Oil Company has reflected the favorable earnings that are common in the oil industry this year, reporting for April, 1937, net profit of $1,372,128, after all charges. That was the highest net profit of the company for any month since November, 1929. The April profit was equivalent to over 40 percent of the total net profit earned by the company in the first 3 months of this year, when net income was $3,328,303.

United Gas

United Gas Corporation and subsidiaries, controlled by Electric Light and Power Company, for the 12 months ended April 30, 1937, reported net income of $11,636,487, after interest, federal income taxes, depletion, minority interest, etc. This compares with net income of $7,362,225 in the preceding 12 months.

Wilcox Oil and Gas

In a new suit brought in district court at Tulsa by Warren H. Davis, a stockholder, judgement of $500.000 and a receiver for the H. F. Wilcox Oil & Gas Company, H. F. Wilcox Loan and Investment Company, and Apex Loan Company were asked. The petition charges irregular business transactions by the management of the companies.

About a week previously an earlier federal court suit for receivership of these companies was dismissed by agreement.

Richfield

According to the final report of William C. McDuffie, as reorganization trustee for Richfield Oil Company of California, total net current and working assets turned over to Richfield Oil Corporation, the new reorganized company, amounted to $14,622,267, as of March 12, 1937.

The reorganization of the old Richfield Company and Pan-American Petroleum Company, including the merger with Rio Grande Oil Company, was completed March 12, 1937, when the assets of the three companies were transferred to Richfield Oil Corporation. The consolidated net profit of Richfield Oil Company of California and subsidiaries for the period January 1, 1937 to March 12, 1937, was $315,634, after deductions.

Anti-Trust Suit

[*Continued from Page 10*]

on demurrer that such may not have been its purpose and effect. . . ."

Likewise scored was the form of the agreement to the code by Texas companies:

"Corroborative of the state's allegation that the anti-trust laws could be violated, and consistent with our conclusions that certain rules are suggestive of such purpose, is a purported document copied in the 36th paragraph of the state's petition. It is there alleged that at a certain meeting . . . a resolution was adopted which in part reads:

"'(d) That on account of the Texas anti-trust laws, the refiners or marketers in Texas refrain from entering into any agreement, so far as applies to business done in Texas, and that in accepting and adopting the code, such refiner or marketer should not use the form of stipulation suggested by the federal trade commission, but should use in lieu thereof some form that states such acceptance as a matter of individual action'."

Approval of the code by the federal trade commission, the opinion goes on, was immaterial. The commission "had no authority to regulate intrastate commerce . . . and its attempt (if any) was ineffective to suspend . . . Texas anti-trust laws."

Question of Constitutionality

Finding the state's petition was not subject to general demurrer, the court then discusses the fundamental law question: "Are Texas' anti-trust laws unconstitutional due to exemption for farmers?

This contention had two bases: (1) The penal code of the anti-trust laws sets up an exemption for agricultural products or livestock; (2) The farm marketing cooperative act sets up an exemption in favor of those associations.

On the first question the court agreed unanimously: civil and penal anti-trust codes are separate and distinct. The penal exemption did not carry over into the civil statutes, and the anti-trust suit was filed under the civil statutes.

On the second question, the court was divided in reasoning but unanimous in conclusion.

The majority felt that the tendency of the courts and the law is to relax restrictions against farm organizations. "We are not prepared to hold that an association created under our cooperative marketing act violates our anti-trust, monopoly or conspiracy statutes." If anything should fall, the majority continued, it should be merely that provision of the marketing act which attempts to create the exemption.

Judge Cureton differed. The provision expressed, he thought, a clear legislative intent to set up farm cooperatives outside the scope of the anti-trust law. Therefore the provision is invalid.

Thus, the difference in the court was only that Judge Cureton was willing to say now that the attempted exemption was invalid; the majority was not willing to make that holding outright. In any event the anti-trust laws are not affected.

Plaintiff and Defendants Err

Upon one point did the state err. The petition sought penalties against Standard Oil Company of New Jersey, Standard Oil Company of California, and Socony-Vacuum Corporation for operating through Texas subsidiaries. The problem was to get service on these companies, which were not operating themselves in Texas. The method used was to serve writs of attachment on the home offices of these companies.

Attorneys for the companies protested they were beyond the Texas jurisdiction; but to make those protests, they had to come into court.

The companies correctly protested, the court said; the state had no statutory authority to serve the writs. However—

The fact that the companies did come into court, even under protest, "their appearances were general appearances, and they are now before the court subject to personal judgments, the same as the defendants which had been cited in the usual way."

In other words, the writs of attachment should have been disregarded. Failure to disregard them was a fatal mistake in judgment. It is recalled that attorneys for those companies had one day in which to decide whether to accept the writs or see the court enter a judgment against them by default. They were more afraid of the latter than of the former.

Attorneys on both sides were given 15 days from June 16 to prepare a decree in keeping with the opinion.

Probe Started

[*Continued from Page 14*]

had dropped 25 percent more in recent years than the price of other commodities. This, he said, was indication that the industry was managing its affairs properly.

Doherty Wants Waste Probed

A letter from Henry L. Doherty, president of Cities Service Company, was received by the commission, asking that the investigating body probe "excessive waste" at natural gas pools. The country over, he said, much valuable gas is being lost by inefficient handling of the wells and three barrels of petroleum are "being left in the ground for every barrel taken out."

W. V. Hartman, Gulf Refining Company, termed price wars the most serious trouble facing the industry, and said many dealers posted certain prices publicly and provided their products at lower figures to preferred customers. All in all, he said the state's oil industry was "not in so very bad shape."

Complaints "concerning a dangerously chaotic condition which can only mean ultimate disaster if it is not corrected" have been received by the commission, Judge Ralph H. Smith, chairman, announced, and concern price differentials between different localities that have no apparent relation to production or distribution costs, price wars and unfair trade practices.

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Tests Using Acid

SOME TURNER VALLEY WELLS TO BE SHOT IN DALHOUSIE

SUCCESSFUL acid treatment of Royalite Oil Company's Sterling Pacific 3 was followed last week by similar treatment of Westside Royalties, Ltd.'s well in south Turner Valley, Alberta, Canada, and resulted in an increase from 230 to 500 barrels in daily yield. Plans were immediately announced to acidize Turner Valley Royalties' discovery well on the west flank, now producing between 500 and 600 barrels daily, and the wells of Foundation Petroleums, Ltd., and Century Royalties, Ltd., and it is expected that the same treatment will be given to other producers during the summer.

A new type of acid was credited with the success of the treatment given the Sterling Pacific 3 and Westside Royalties wells, previous attempts to boost production of Turner Valley wells in this manner failing because of the peculiar nature of the limestone. At the Westside well, gas flow had increased from 2,700,000 cubic feet before treatment to 7,500,000 cubic feet. Flush production after acidization dropped from 500 to 445 barrels, and officials expect a further drop of a few barrels before the well settles to even production.

Trouble With Wax

Completed a year ago, tubing at the Turner Valley Royalties well is being clogged by wax and a derrick is being erected preparatory to cleaning out. At the same time, the acid treatment will be given. Foundation has been producing 230 barrels a day, and directors hope this yield will be doubled following acid treatment which is to be undertaken immediately.

The Century Royalties well, now producing 100 barrels of crude a day, pioneered the west flank of Turner Valley. Located on Legal Subdivision 14, Section 28, Township 18, choice of the site was subject of much criticism by oil men at the time, the general belief being that it was too far west and that extreme drilling depths would preclude possibilities of the well reaching production. Drilled in 1934, it has paid out $349,742.65 to date.

Success of the experiment a week ago to obtain production from the Dalhousie sands by shooting and perforating at Highwood - Sarcee Company's No. 1, northeast of the Foundation well, which had been yielding a small amount of naphtha from the lime, will be followed by similar operations at Sterling Royalties, Ltd., Carleton Royalties, Ltd., Mercury Royalties, Miracle Oil, Ltd., Hylo and Spooner Oils, Ltd. Flush production at the Highwood-Sarcee well, after discharge of 200 cartridges of nitro-glycerine, was 450 barrels in 24 hours.

Throws Oil Over Derrick

Richland Oil Company's No. 3, next test scheduled to reach the lime and just east of Turner Valley Royalties, encountered a large quantity of crude oil in the Dalhousie sands which filled up more than 2000 feet in the hole. When the swab was run down once oil was hurled over the derrick. It has settled down and bailing was in progress as the week closed. Depth is 5440 feet, and drilling will be resumed to the limestone, expected in another 200 feet.

Deeper than Richland 3 was Monarch Royalties, drilling below 6220 feet but still an estimated 300 feet from the lime. Upon completion equipment from this test is to be moved to the 80-acre lease of Sunset Oils, Ltd., for this company's No. 2. Anglo-Canadian Development & Holding Co. will do the drilling.

Third Turner Valley test expected to reach the limestone is Royalite Oil Company's Sterling-Pacific 5, located in the same section as Sterling-Pacific 4, largest crude producer in Canada now yielding over 1000 barrels daily. The former is drilling at 5975 feet, approximately 700 feet from the limestone. Sterling Pacific 4 reached the lime at 6709 feet.

Wildcat Nearing Limestone

Outside Turner Valley field, Hunter Valley Oil Company's wildcat on the Hunter Valley structure, west of Olds, drilling below 7810 feet, was expected to reach the limestone at any time. Location is Legal Subdivision 12, Section 13, Township 31. New Valley Oil Company's wildcat on the New Valley structure and Ranchmen's wildcat on the High River-Aldersyde structure were drilling at 7225 and 7155 feet respectively. New Valley Oil Company's test is in Legal Subdivision 4, Section 6, Township 21, and Ranchmen's is in Legal Subdivision 16, Section 13, Township 20.

Organization of Liberty Oils, Ltd., with plans to drill a well within 60 days in the vicinity of the Plains Petroleum Corporation's No. 2 on Taber structure was announced. The field was proven three months ago by the latter's No. 1. Officers of Liberty Oils, Ltd., are J. P. McCaffery, Calgary, president; Hugh P. McLeod, Calgary, vice president; E. C. Snider, Calgary, secretary-treasurer; Charles F. Reilly, Calgary and Thomas B. Greening, Seattle, Wash., directors; H. K. Reed, Calgary, auditor, and Snider, solicitor.

Wildcats Outside Turner Valley

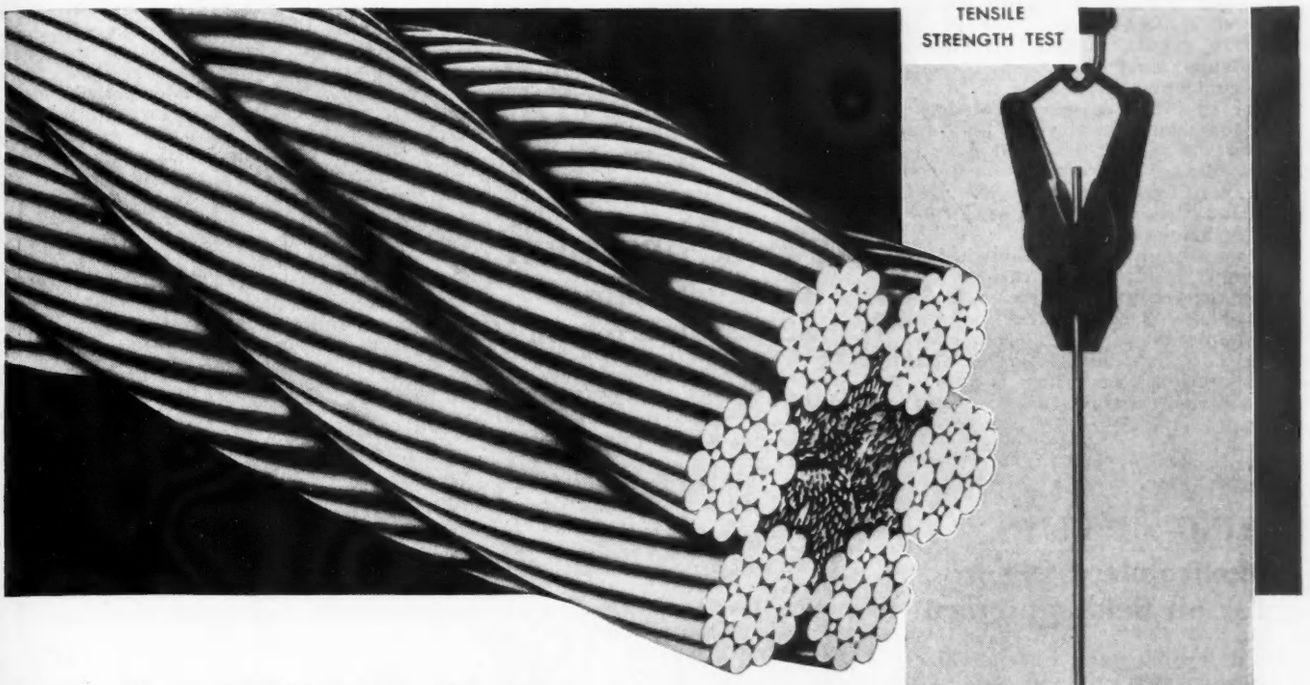
The report of Alberta wildcat tests outside Turner Valley area follows: Weymarn Petroleums, Pincher Creek structure, testing at 5960 feet; Roxana Petroleums, Kootenay Dome structure, drilling at 2850 feet; Hunter Valley Oil Company, Hunter Valley structure, drilling at 7810 feet; New Valley Oil Company, New Valley structure, drilling at 7725 feet; Ranchmen's, High River-Aldersyde structure, drilling at 7155 feet; Franco Oils, Cardston structure, drilling at 4585 feet; Canadian Royalties, Highwood-Sinclair structure, drilling at 2725 feet; Moose Oils, Moose dome, drilling at 900 feet; Elbow Oils, Birch Ridge structure, drilling at 5100 feet.

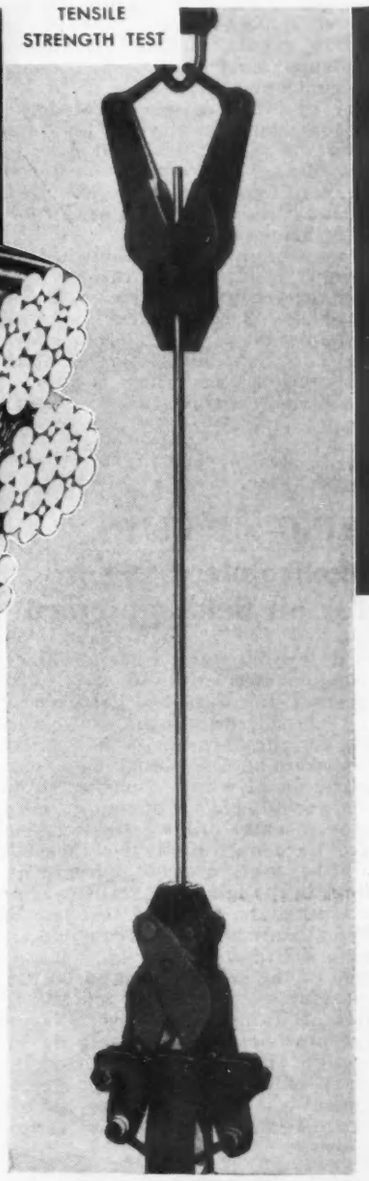
PLAN EXPANSION

Mexico's company will get government help

Incapacity of the government owned and controlled National Petroleum Corporation, successor to the defunct Petroleos de Mexico, to handle demands of production and distribution made upon it during the recent 11-day strike which paralyzed the oil industry in Mexico has led to a decision to reorganize the government's new integrated oil company.

The government will support reorganization and expansion of the federal company during the remainder of 1937, it is expected. This opinion was developed in Mexico City oil circles following recent conferences between





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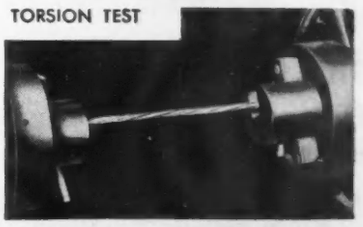

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UNITED STATES STEEL

President Cardenas of Mexico, Finance Minister Eduardo Suarez and Manuel Santillan, general manager of National Petroleum Corporation. Santillan, a petroleum engineer, was head of University of Mexico's geological department for a number of years before accepting the responsibility of directing affairs of the government's new company. Petroleos de Mexico, the predecessor of National Petroleum Corporation, is being liquidated.

In connection with the above development, it is interesting to know that during the recent oil strike in Mexico none of the 18,000 workers made idle were employees of the government controlled company, but that most of the demonstrations, according to reports, were directed against the government company.

BUYING SUPPLIES

Mexico places big order for oil field equipment

Oil well drilling and other machinery and equipment worth more than 1,000,000 pesos (some $280,000) has been acquired abroad, mostly in the United States, for the account of the General Administration of National Petroleum, organization of which company to supervise various phases of the oil industry was recently ordered by President Lazaro Cardenas, of Mexico. Most of it will be used in the government's holdings in the famous Poza Rica zone, Vera Cruz state. Some of the machinery has already arrived at Tampico and is being distributed.

Some of the equipment is to be used in continuing conditioning of the refineries at Tampico that were owned by the now defunct Compania de Petroleos de Mexico, S. A. (Petromex), the semi-official oil company. Among equipment the administration has ordered are 1000 tons of tubing of various diameters.

WORK IS HAMPERED

Delay in grant of permits effects northeast Mexico

Efforts to develop commercial gas production in northeastern Mexico to satisfy domestic needs of Monterey and other cities in Mexico apparently is being hampered by the slowness with which permits to drill new wells are granted by the proper government authorities.

Continental Oil Company's Zacate 6 has been rigged up and waiting on a permit to start for several weeks. The same is true of Ohio-Mex Oil Company's Rancherias 5.

In mid-June Rancherias field was producing 12 million cubic feet of gas daily from Rancherias 1, 3 and 4 of Ohio-Mex Oil Company. This was being delivered to the Monterrey line. In addition, the two wells of La Presa field were delivering about a quarter million cubic feet of gas to the same line, whereas the three wells of Munoz and Martinez were delivering about 4.8 million cubic feet daily for Monterrey consumption.

Among the active tests in northeastern Mexico, Frick Williams' Williams 2 is shut down at 2100 feet, but may start again. Navarro et al's Peyotes 1 is drilling limestone below 4250 feet, reportedly headed for 5000 feet.

NEW EXPORT HIGH

Venezuela ships 22,327,162 tons in 1936

Exports of petroleum from Venezuela in 1936 totaled 22,327,162 metric tons (approximately 156,290,134 barrels) compared with 20,522,097 metric tons (approximately 143,654,679 barrels) in 1935, an increase of nine percent and the highest exports on record, according to a report to the Department of Commerce from the office of the American Commercial Attache, Caracas.

Lago Petroleum Corporation was first-ranking in volume of exports among the companies operating in Venezuela, being credited with shipments totaling 7,251,261 metric tons of petroleum, according to the report, and was followed in order by Venezuela Oil Concessions, Ltd., 5,867,405 metric tons; Venezuela Gulf Oil Company, 3,143,074 metric tons. Standard Oil Company of Venezuela, Ltd., 3,554,161 metric tons; Caribbean Petroleum Company, 1,778,201 metric tons; Colon Development Company, 624,898 metric tons, and British Controlled Oilfields, Ltd., 108,160 metric tons.

TABASCO COMPLETIONS

The first well completed by Pantepec Oil Company on the 25,000-acre Tabasco tract in Venezuela flowed initially 390 barrels of 15 gravity oil in 15 hours through a half-inch choke, according to a cable received by the company. Open flow capacity of the well is estimated at 2500 barrels per day.

Standard Oil Company of Venezuela and Gulf Oil Corporation are drilling to the east and west of the well, but not close enough to be considered offsets.

CZECHOSLOVAKIA

Anticipated markets will encourage exploration

Impetus to continued and additional wildcat drilling in Czechoslovakia arises from the fact that the prospects for late 1937 and 1938 for the Czechoslovak market for crude petroleum and mineral oil products are considered much brighter than those of last year. Czechoslovak opinion is to the effect that a gain of 10 percent in gasoline and 14 percent in lubricating oils for 1938 might well be expected.

The slump in Czechoslovak crude oil production has been charged to high government taxes which have had a tendency to discourage private operations there. However, private operators recently obtained a reduction in these taxes, and it is anticipated that new exploratory drilling will be done.

Production of crude petroleum in Czechoslovakia continues relatively small. Most of it has an asphalt base without kerosene and gasoline content and can be refined only into heavy oils such as lubricating and gas oils.

More than 50 percent of the nation's total output of 130,655 barrels in 1936 was produced by government owned wells at Gbely. The oil wells in the Hodonin field, located in southern Moravia and operated by the Apollo Company, accounted for 48,041 barrels of the 1936 production, while the Mikova oil field in northern Slovakia yielded only 133 barrels in 1936.

Production of crude petroleum in Czechoslovakia during the past five years was as follows:

Czechoslovak Production of Crude Petroleum

Year	Barrels
1932	109,451
1933	124,432
1934	181,797
1935	139,622
1936	130,655

ALBANIAN CONCESSION

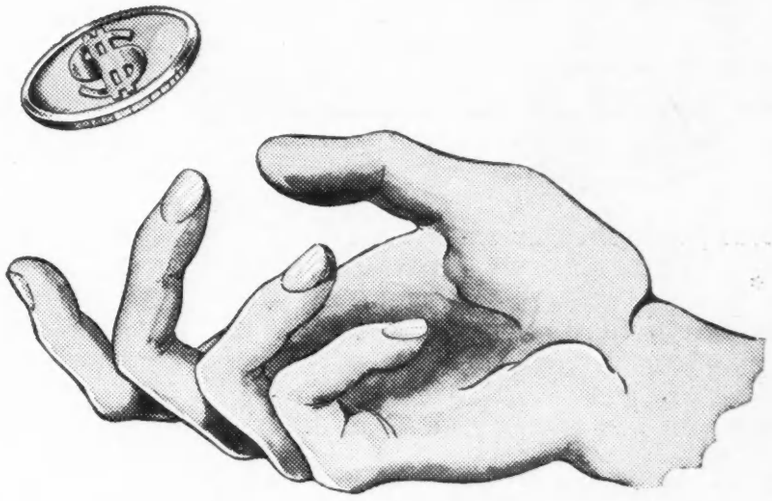
The Franco-Albanese Syndicate, which has recently passed under the control of the Societe' Francaise Industrielle et Commercialle des Petroles, (capital 200,000,000 francs), has obtained from the Albanian government a 3-year concession for prospecting the territories of Berat, Scutari, Korcha and Valona. During the years 1937-38-39 the Syndicate is under obligation to sink 10 wells in various parts of the concession, each to a depth of not less than 1000 meters.

Under terms of the concession the Syndicate undertakes to deposit with the Albanian government mortgage bonds to the value of 500,000 Francs (gold) and to pay a royalty of 36,000 francs (gold) per annum. In the event of the syndicate failing to fulfil these conditions it will pay to the Albanian government an indemnity of 360,000 gold francs. Should production from the concession exceed 50,000 tons per annum the syndicate undertakes to construct one or two refineries in Albania. The Albanian government reserves to itself the right to acquire 20 percent of the production of the refinery at a price which shall be 10 percent below current market quotations.

SWEDISH WILDCAT

Harold Carlson of Stockholm advises that Skansa Cement AB, Malmo largest manufacturer of cement in Sweden, contemplates wildcat drilling within an area of 1325 hectares (about 3273 acres) in the File-Haidar district east of Tingstade marsh in Tingstade Parish and in Hejnum Parish and in Slite Township.

Request for permit to drill was based on geological and geophysical work done in the area by Skansa Cement, AB.



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So the test well may strike "pay sand," or just sand. But it costs the same either way.

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OKLAHOMA FIELDS

Pottawatomie wildcat finds Wilcox saturated.

* * *

New Pontotoc Viola lime field may be opened.

* * *

South edge of Moore may have been found.

Tulsa.—New pools for Pottawatomie and Pontotoc Counties were indicated by wells which had found saturated formations last week.

Pottawatomie County, Stanolind Oil & Gas Company and America Petroleum Corporation are waiting to drill plug in Billington 1, SE SW SW, 32-9n-3e. Four feet of Wilcox sand was penetrated at 5320 feet. This test is 10 miles northwest of nearest production in the Greater Seminole area. A successful completion will mark the first oil discovery between the Seminole fields and the Oklahoma City field.

The Pontotoc County showing was in the Viola lime in C. W. Roodhouse et al's Booth 1, SE NW SE 20-2n-6e, three miles northwest of production in the Fitts pool. Drilling was continued through the Sylvan shale and into Viola lime, although showings were found in the Hunton lime, topped at 4039 feet and drilled and cored through at 4388 feet.

Pottawatomie Test Important

The Pottawatomie County wildcat filled 370 feet with oil June 13 from Wilcox sand, topped at 5316 feet and drilled to 5320 feet. Casing was set and the hole will be completed this week.

Stanolind Oil & Gas Company and Amerada Petroleum Corporation have leases on 720 acres in the area. Other lease holders are Continental Oil Company, British American Oil Producing Company, The Texas Company, Gulf Oil Corporation, Shell Petroleum Corporation, Skelly Oil Company, Sinclair Prairie Oil Company, and several independent producers, whose interests are in partnerships.

Location has been made by Shell Petroleum Corporation for Means 1, SWc SE 32-9n-3e, a quarter of a mile east of Billington 1.

Between the Roodhouse test and the Fitts field is one dry hole that failed to go deep enough to test the Hunton lime. Sledge et al's Crabtree 1, NE SE NE 27-2n-6e, found the Cromwell sand at 2365 feet and abandoned at 2920 feet. Another test, McCraw's Mayhue 1, NEc 19-2n-6e, found the Hunton lime abnormally high at 1677 feet; water was found in sand from 1747 to 1776 feet, and it was abandoned at 1871 feet.

Nearest dry hole to the Billington well was drilled by Empire Oil & Gas Company during the Greater Seminole boom. It is a mile and a quarter to the southeast. This dry hole was drilled to 5515 feet, 199 feet lower than the top of the Wilcox sand in the producing well.

Nearest production is in the St. Louis pool, Pottawatomie County, 10 miles to the southeast.

Thick Zone in Pontotoc Test

As there are dry holes between the Roadhouse test and the Fitts pool, the showings in the Hunton lime have been accepted as indications of a new pool. Thickness of the Hunton lime was one of the features of the well. The bit showed 349 feet of this formation. Thicknesses of this depth have been found in the eastern part of the Fitts pool but on the west side this formation is thinner. Frequent cores were taken in the Hunton lime and saturation was found several times.

The hole went into Sylvan shale at 4389 feet and no showings were found in it. Top of the Viola lime was found at 4530 feet and no showing had been encountered here at the end of the week, when the hole was drilling below 4700 feet.

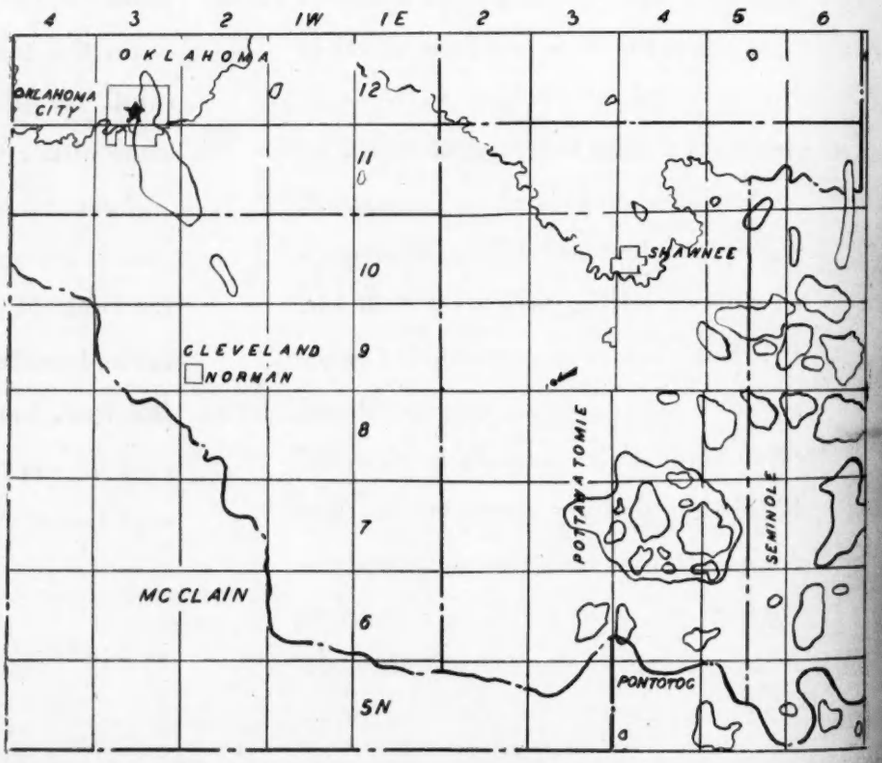
Several good potentials were reported from the Fitts field. E. H. Moore's Frazier 1, SE NW NW 23-2n-7e, made a potential of 2701 barrels of oil and 2,072,000 cubic feet of gas from the Hunton lime. Magnolia Petroleum Company's Harden 15, NEc NW 30-2n-7e, made a Hunton lime potential of 1433 barrels of oil.

J. Paul Getty and Minnehoma Oil & Gas Company's Masters 5, SW SE NW 23-2n-7e, perforated casing in the Hunton lime between 3846 and 3859 feet and made 400 barrels of oil in one hour through casing and 168 barrels of oil in one hour through tubing. It was shut down at 3968 feet waiting on a potential test.

Skelly Oil Company's Akers 3, SE SW NE 36-2n-6e, was acidized with 8000 gallons between 3900 and 3946 feet and with an additional 4000 gallons between 3739 and 3761 feet. Shut in for five hours, the well was opened and made 741 barrels of oil in four hours. It established a potential of 4590 barrels of oil daily.

Meanwhile, the state's two most interesting wildcat tests were making slow headway. Carter Oil Company et al's Thompson 1, CSL NE NW 34-2n-9e, in the Centrahoma area of Coal County, had a hole full of oil and was to start bailing June 17. The well was acidized with 2000 gallons last week. A wooden plug, set before acidization, was driven ahead, and the well was bailing water at 6400 feet.

The other test, also drilled by Carter



Cement plug will be drilled this week in Billington 1, SW SE SW 32-9n-3e, Pottawatomie County wildcat, which gives promise of adding another Wilcox-sand pool to the Greater Seminole area.

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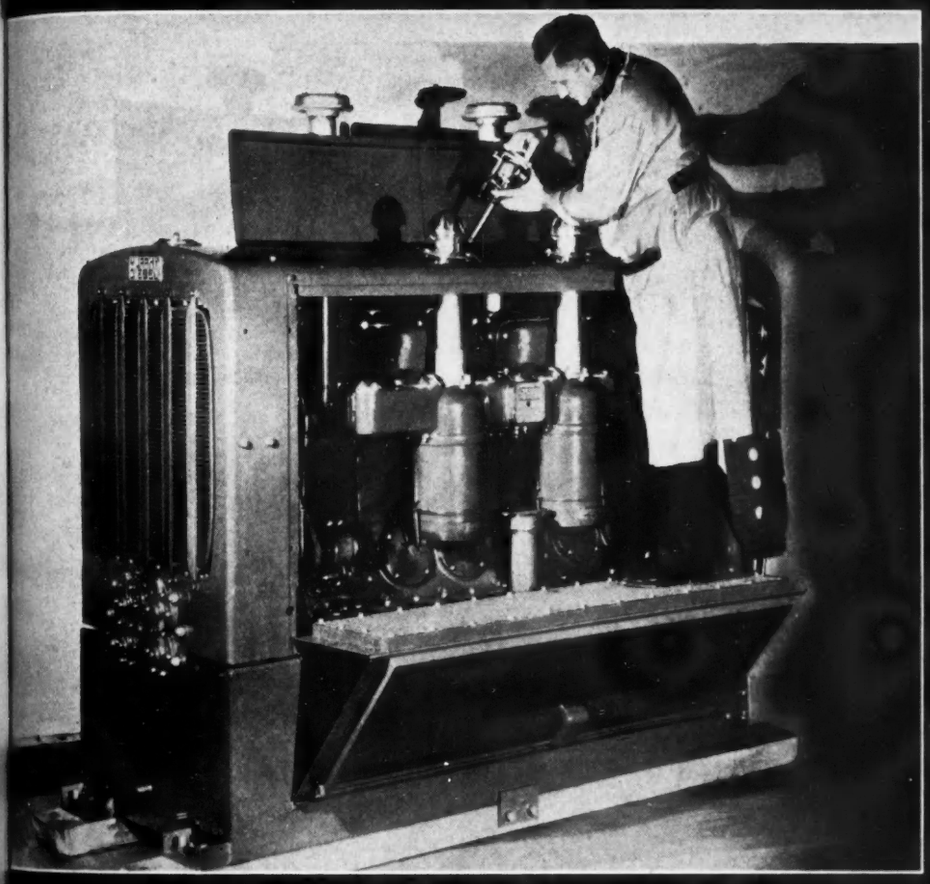

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Oil Company and others, was Hamilton 1, CWL NE SW 33-4n-9e, near Citra in Hughes County, swabbed 143 barrels June 18. It previously swabbed 77 barrels of oil in 24 hours and was acidized with 2000 gallons, at a total depth of 5982 feet in the McLish sand. A 239-barrel oil load was run in on top of the acid.

E. H. Moore & Southern Oil Company's Buck 1, NW SW SW 21-8n-10e, northeast of Holdenville in Hughes County, set 10-inch casing after the Gilcrease sand had been topped at 2725 feet and drilled to 2750 feet after rigging up standard tools. Gas estimated from 1,000,000 to 2,000,000 cubic feet was encountered, and the well was shut down to install a control head.

Sunray Oil Company's Cully 3-B, SWc SE 18-5n-8e, in the Allen pool of Seminole County, topped the Wilcox sand at 4016 feet and drilled to 4017 feet, following which it pumped 200 barrels of oil in 24 hours, part of which was the oil load.

More Oklahoma starts than well completions

Tulsa.—First reports in Oklahoma ran behind well completions last week, 59 to 64. In the 64 completions were 44 oil wells with initial output of 24,519 barrels, three gas wells and 17 dry holes. Pontotoc County led in new locations with 14. Osage County had 11. Okmulgee and Seminole Counties had eight each. Others were Creek County 4, Noble County 3, Oklahoma County 2, one each in Carter, Garvin, Hughes, Kay, Kiowa, Pawnee, Pottawatomie, Stephens and Tulsa Counties.

OKLAHOMA
Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
BECKHAM COUNTY—		
Carter, Porter 1, csw sw 36-10n-25w	*	3632
CARTER COUNTY—		
Schermerhorn, Fee 29, se sw nw 5-4s-3w (otd 1080)	40	1131
Shell, McClure 49, sw se nw 5-4s-3w (pb 1100)	25	1189
McClure 50, nw ne sw 5-4s-3w (pb 1112)	34	1115
Sinclair Prairie, Loman 23, sw nw se 9-4s-3w	12	1140
COMANCHE COUNTY—		
Reynolds, Truitt 2, cwl e½ se 26-2n-11w	*	470
CREEK COUNTY—		
L. B. Jackson, Bruner 1-A, nw nw sw 9-18n-11e	*	1803
Oklahoma Utilities, Dresser 1-A, cw½ sw se 16-17n-8e (otd 2815)	¶.25	2834
Wood Oil, Washington 1-A, cse ne 7-17n-7e	22	2419
GARVIN COUNTY—		
Simpson Fell Oil, Derdyn 9, cse½ se ne 17-1n-3w	40	1788
HUGHES COUNTY—		
Marbett, Culver 1, ne ne ne 11-7n-8e	*	2929
Pitts, Pipe Co., Fish 2, se sw nw 20-7n-8e	240	2906
Palmer, Scroggins 1, nw nw se 20-7n-8e	175	2040
Seran, Tucker 2, nw se se 2-9n-8e	25	1816
JACKSON COUNTY—		
Gulf Oil Corp., McDaniels 2, se se ne 3-1n-20w	8	1613
Burke Royalty et al, Minor 5, ne sw ne 15-1n-20w	65	1415
KAY COUNTY—		
Sinclair Prairie, Lawrence 5, se se se nw 5-28n-1w	250	2777
KIOWA COUNTY—		
Argus, Osmond 1, nw nw ne 9-7n-16w	6	1275
LOGAN COUNTY—		
Rayden Oil Co., Langston 1, se nw se 13-17n-1w	*	5227
Carter & Gulf, Miller 4, nw nw se 28-17n-4w (pb 6080)	149	6332
MARSHALL COUNTY—		
Centorp Oil Corp., Ayers 1 "A", ne ne se 25-7s-5e	2	535
Ayers 3 "B", nw ne se 25-7s-5e	4	500
MURRAY COUNTY—		
J. Ben Russell, Fee 1, se nw se 9-2s-3w	*	2223
McINTOSH COUNTY—		
S. E. Dieckman, K. McIntosh 1, se se se 4-12n-17e	*	1755
MUSKOGEE COUNTY—		
Wells, Johnson 1, se se sw 11-10n-11e	*	2225
Commercial, Comey 2, nw ne ne 26-12n-11e (otd 2669)	100	3580
NOBLE COUNTY—		
Continental, Conway 3, ne se ne 21-23n-2w	2678	4312
Phillips & Shell, McCaughtry 11, nw se ne 21-23n-2w	2635	4319
OKFUSKEE COUNTY—		
Hays et al, Durkee 1, se se sw 21-10n-11e (otd 2630)	¶1	2636
Chapman, Williams 5, se sw sw 25-10n-8e (pb 1758)	5	1770
Evens Morris et al, Lively 3, nw se nw 36-10n-8e	50	1752
Arkansas Royalty, Fisher 14, sw sw se 18-10n-9e	360	1853
Sinclair Prairie, Cohee 2, sw sw ne 19-10n-9e	80	1883
Stekoll, Detzler 4, sw ne ne 2-10n-11e (otd 1720)	*	2631
OKLAHOMA COUNTY—		
Anderson & Kerr, Frazier 1, sw nw ne se 27-12n-3w	4241	6490
OKMULGEE COUNTY—		
Martin et al, Fields 1-A, se sw nw 16-14n-11e (pb 2200)	15	2452
OSAGE COUNTY—		
Devonian Oil, 3, se ne ne 33-21n-10e (otd 1534)	15	1872
Midco Oil, 26, ne nw se 18-22n-10e (pb 1992)	15	2049
Branstretter et al 5, ne sw sw 28-22n-11e	70	2112
F. A. Haves, 2, sw se sw 16-23n-11e (otd 1811)	12	1912
PAWNEE COUNTY—		
E. O. Platter, Bunch 3, nw sw ne 4-20n-9e	¶1/3	670
PAYNE COUNTY—		
Summit Drlg., Sharp 1, cne se 8-19n-1w	*	5152
Magnolia Pet. Co., Main 10, sw nw nw 34-19n-4e (otd 3784)	*	4151
PONTOTOC COUNTY—		
Continental, G. L. Thompson 1, ne ne se 2-1n-7e (pb 4036)	435	4621
Lcual et al, Craddock 3-A, sw ne ne 25-2n-6e	160	1885
Magnolia, Norris 12, ne nw se 21-2n-7e	3206	3724
Amerada, Wooley 12, se se nw 22-2n-7e (pb 3777)	970	3838
Wooley 14, ne se nw 22-2n-7e	2592	3810
Sinclair Prairie, Burris 18, sw sw ne nw 27-2n-7e	285	2560
Amerada, Smith 8, nw se nw 28-2n-7e	2552	3564
Fleetborn, Wooley 4-B, sw ne se 28-2n-7e	566	3476
Moore, Woodroff 3, ne nw se 29-2n-7e (otd 1720)	*	1958
Deep Rock, Hardin 9, sw se ne 30-2n-7e	398	3610
Magnolia, Hardin 16, nw ne nw 30-2n-7e	1821	3911
Moore, Mobley 4, se nw ne 32-2n-7e	*	4775
Delancy, Norris 1-A, nw nw se 18-4n-8e	*	2612
Mary F. Oil Co., Miller 5, nw ne se 16-5n-8e	10	948
SEMINOLE COUNTY—		
Burns Oil, Ritter 1, ne ne ne 31-7n-6e (pb 2964)	*	2980
Devonian Oil, Whitefield 1, ne ne nw 27-7n-7e	60	2128
Carter, Lay 1, cw½ sw se, 7-10n-6e (otd 4609)	10	4114
STEPHENS COUNTY—		
Healdton Pet., Jamison 8, ne sw se 14-2s-4w	1½	494
Jamison 9, se nw se 14-2s-4w	*	612
Harmon & McAllister, Nigh 2 "B", se ne sw 11-2s-8w	80	2058
TULSA COUNTY—		
Gilmort, Donaldson 1-"A", nw ne sw 24-18n-12e	*	2115

[See Page 123]

Billings Active as Moore shows slacking of work

Oklahoma City.—Wilcox sand development in the old Billings pool of Noble County has pushed that field into first place in drilling in this section of Oklahoma. Since productive limits are being steadily extended south and west there are indications that this field may pass the Moore pool of Cleveland County in total potential.

There has been a lull in field work at Moore caused in part by inability to get potentials on some of the recent producers, and in part by the fact that methods of taking potentials in this field will be one of the subjects considered during the hearings before the Oklahoma Corporation Commission next week. The commission has granted arbitrary potential figures for three recent producers and they will stand until orders are written from the hearing next week.

So far producers in the Oklahoma City pool have been unsuccessful in gaining further production from the third Tonkawa sand, which was found productive in one well which was plugged back from the Simpson formation.

Outside locations to the south and west of the productive limits of the Billings pool, Noble County, continue to be made. There are now 26 producing wells in the Wilcox sand on the west flank of the field. They have a combined potential of 74,984 barrels. Three other wells are either in the sand or nearing it, and should be ready to take potentials this week.

Production of 300 barrels per hour was indicated last week for Phillips Petroleum Company and Shell Petroleum Corporation's McCaughtry 10, NW SE NE 21-23n-2w, which is bottomed at 4323 feet. A potential figure of 2978 barrels was set for Tide Water Associated Oil Company's Shaffer 2, NE NW SW 21-23n-2w, from 4399 feet.

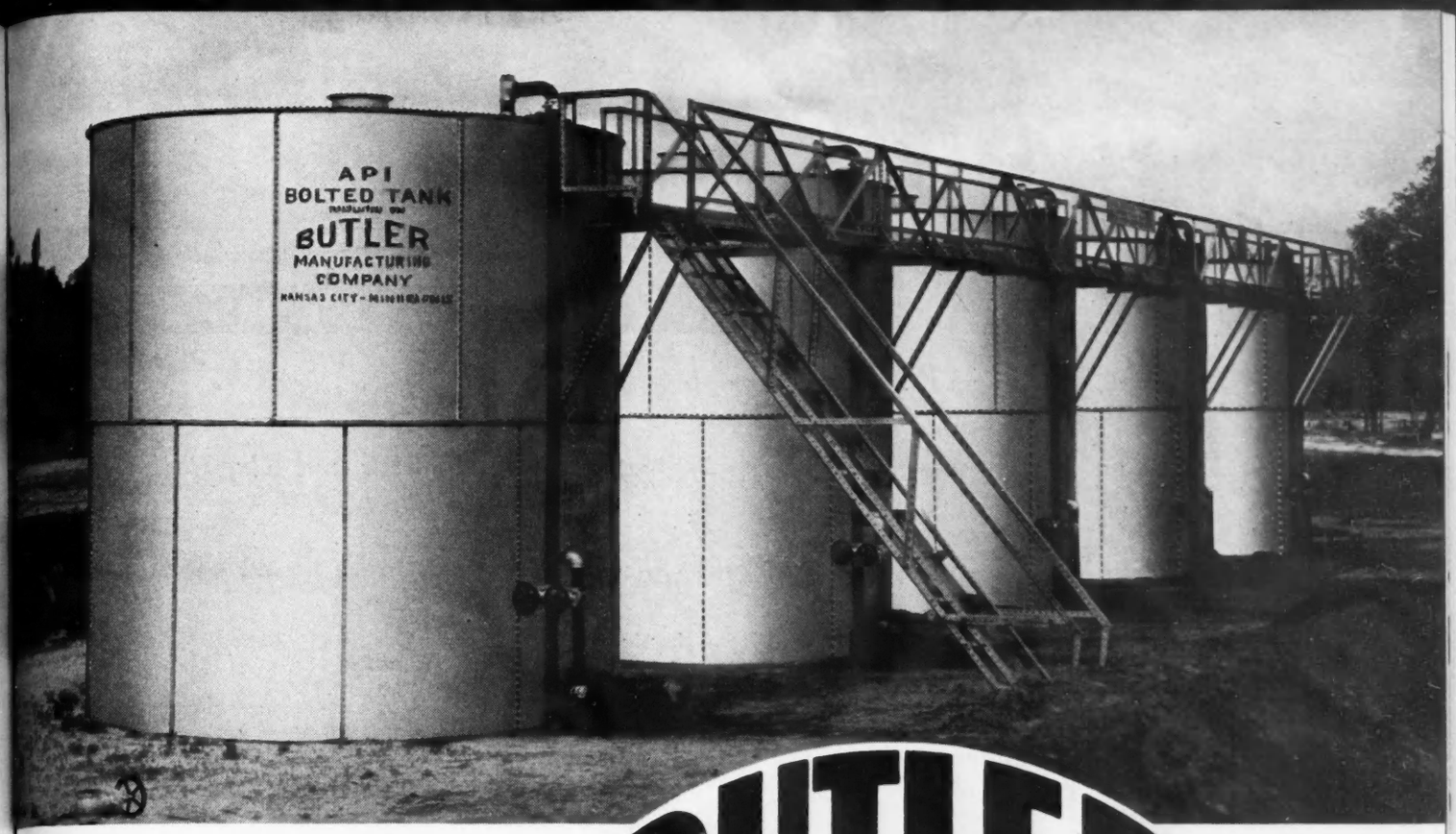
Three and a half miles west of the Billings field, Ohio Oil Company has set casing in State 1, SWc 12-23n-3w, which drilled into the Arbuckle lime at 5005 feet, and continued to 5200 feet without finding production. Seven-inch casing has been set at 4905 feet, and efforts will be made to find some higher sand productive.

Southeast Edge of Moore

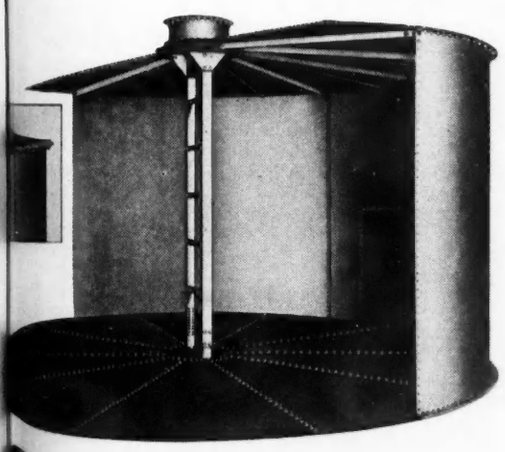
Activity at two wells on the southeastern edge of the Moore pool, Cleveland County, indicates that production will not extend far beyond the southwest quarter of 27-10n-2w. James 2 of Gulf Oil Corporation, SE NW SW 27-10n-2w is running tubing to 7289 feet in an effort to restore it to production. This well was previously carried as a completion. James 3, NE SW SW, 27-10n-2w is at 7291 feet with oil showing. A fishing job for two joints of drill pipe last week caused delay in the effort to get a potential test.

Both these wells are structurally lower than the large wells that make up the major portion of the field to the northwest. Indications are that the two will become producers, although initial output may be far lower than wells higher on the structure.

Southeast of these two wells Keller 1 of Denver Producing and Refining Company, NWc NE, 34-10n-2w, had the Wilcox sand at 7381 feet and drilled to 7489 feet and failed to make a well. It was plugged back to 7310 feet



Specify BUTLER BOLTED TANKS



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Made of Copper Steel throughout to conform to **A.P.I. Specifications 12B.**

Stairways and **Runways** are trim, safe and economical. Continuous, standardized punching of members gives the flexibility to facilitate mounting to tank batteries irregularly spaced or of varying sizes.

Welded Tanks tailor-measured and tailor-made to fit any oil field requirement.

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STEEL BUILDINGS of standardized, section-unit construction in sizes from the boiler house shown below to largest of refinery units.

and established potential of only 165 barrels of oil.

Drilling activity in the field has been slowed down because of the hearing due next week before the Oklahoma Corporation Commission to determine the method of taking potentials at Moore as well as in other pools of Class C. Meanwhile the commission has granted arbitrary potential ratings for three recent completions, where efforts to determine output failed because of excessive gas pressure, which carries sand and cuts out connections.

Arbitrary potentials of 24,108 barrels each were granted for Anderson-Prichard Oil Corporation's State 3, SW NE SE 16-10n-2w, Phillips Petroleum Company's State 1, SW SE SE 16-10n-2w, and Sinclair Prairie Oil Company's Marvel 3, NW NE NE 21-10n-2w. This gives the field 10 producers of that potential rating by order of the commission.

Oklahoma commission to study proration questions

Oklahoma City.—Cancellation of both overage and underage for all wells and leases of the Oklahoma City fields has been added to the subjects, which the Oklahoma Corporation Commission will consider June 25, the fourth day of its series of hearings to determine potential ratings for Oklahoma oil fields for the six months beginning July 1. Petitions seeking this cancellation were filed by Grison Oil Corporation and Westgate-Greenland Oil Company.

Each concern set out that in its case overage and underage on lease basis operation had come about due to mistaken conception of orders of the commission as it had credited the overage of some wells to those which were not capable of making allowables.

The docket before the commission for next week will include the following:

June 22, application for rules for determining potentials of Class B pools for the July 1937 period and for the reclassification of any Class B pools; rules for determining potentials of Class C pools and the rules for tubing wells of this classification and for the taking of potentials through tubing, rather than casing.

June 23, application for rules for determining potentials of the Wilcox zone of the Oklahoma City field for the period beginning July 1, 1937, and for the determination of future potential periods.

June 24, application for increase in minimum allowable in the Fitts (Hunton lime) wells from 75 barrels to 100 barrels daily, application for classification of third Tonkawa sand of the Oklahoma City field as a Class C pool.

June 25, application for determination of allowables for Oklahoma for July, 1937.

In preparation for the hearing on the Wilcox zone at Oklahoma City, June 23, William J. Armstrong held a conference with producers of the field June 18. This was to allow preliminary discussions to dispose of details which must have consideration in fixing both the potential period and the potential figure for Wilcox zone wells.

New fields indicated for Pratt, Ellis and Rice Counties.

* * *

Ness wildcat still chief interest, to be tested soon.

Wichita. — Showing in three wildcat wells last week gave indication of opening pools in Western Kansas, one in Pratt County, one in Ellis County and one in Rice County. Another well between the Silica and Schartz pools, Rice County, may prove a link for the two.

Chief interest in Western Kansas, however, continues to be the Newton Development Company's Tenn 1, NWc SE 19-18s-25w, which has yet to complete a production test to show what sort of pool has been opened in Ness County. After filling 3400 feet with oil last week and swabbing for short periods the well was shut down and the hole underreamed to set 6-inch casing. This has been landed at 4372 feet. Total depth of the hole is 4381 feet with bottom of the hole not more than one foot in the formation that is producing the oil. Meanwhile a leasing play has spread around the well. Its owners are having title examined and also puting more leases under control.

Most observers class the production as coming from the Mississippi lime. Nearest production, two fields with one well each is from the Siliceous lime.

The well will be drilled deeper after cement has set and tankage has been erected.

In Pratt County, Atlantic Refining Company et al's Runyon 1, SW NW NE 11-27s-13w, 10 miles southeast of the Kipp pool of Stafford County and almost an equal distance from the Pratt County extension of the Cunningham pool found the Kansas City lime at 3872 feet saturated with oil. Supporting Atlantic in the test are Empire Oil & Refining Company and Skelly Oil Company, the three firms controlling the area. It is believed a large field will be developed there.

Another new pool is in prospect for Ellis County at Hall & Billings' Smith 1, SEc NW 14-12s-16w. It filled 1000 feet with oil from the Oswalt lime at 3194 feet. Casing was being underreamed to the top of the pay formation preparatory to taking potential.

The new chat area in eastern Rice County, opened two weeks ago by Fred Phillips et al's Hubenett 1, SW NW SW 23-20s-6w, may be called Hubenett. The well topped the chat at 3322 feet; topped the pay at 3335 feet and was drilled to a total depth of 3366 feet where it filled 3100 feet with oil in 14 hours. It made 50 barrels of oil when put on swab.

Farther south in the county, Lauck & Moncrief's Hetter 1, NEc SE 1-21s-8w, just northwest of the Saxman pool, topped the conglomerate at 3341 feet and had a showing of oil when rotary mud was circulated. At 3343 feet the well began showing for a good producer and tanks were being built for a production test. The hole filled to the top with oil while bailing to clean out. It may be drilled deeper as the formation had only been penetrated about two feet.

The Texas Company's Henning 1-A, NEc NW 22-19s-11w, a mile south of the one-well Lanterman pool of Barton County, drilled plugs after setting 6-inch casing at 3097 feet and the hole filled to the surface with oil. It flowed and swabbed 108 barrels of oil in six hours and had gas estimated at 5,000,000 cubic feet. The gas volume later dropped off and operators were running tubing to acidize. Top of the Lansing lime was had at 3040 feet, and the pay from 3105 to 3115 feet.

Skelly Oil Company's Dittmers 4, SEc SW 28-19s-10w, was to take potential. The well apparently establishes a link between the Silica pool and Schartz pool, being one location east of production in the Silica pool. At 3275 feet the well was acidized with 2000 gallons and pumped 120 barrels of oil in three hours. It later established a potential of 1268 barrels of oil from a total depth of 3277 feet in the Siliceous lime.

Walters Extended

Carter Oil Company's Staab 3, SEc NW 11-12s-18w, extended the Walters pool of Ellis County northwest one-quarter mile last week when it made 957 barrels of oil on pump. It is also about one mile west of the present producing limits of the Shutts pool.

Stanolind Oil & Gas Company's Struder 1, SEc SW 26-16s-13w, which opened a new oil pool in the Hoisington area of Barton County two weeks ago, pumped 675 barrels of oil in 24 hours from a total depth of 3412 feet in the Siliceous lime. The new well is about one and one-quarter miles northwest of production in the Ainsworth pool.

Drilling in other parts of the state, although not so spectacular, were steady. Schoenfeld & Kitch et al's Suppes 1, CSW 14-16s-16w, east offset to the discovery producer in the Winget pool of Rush County was completed as

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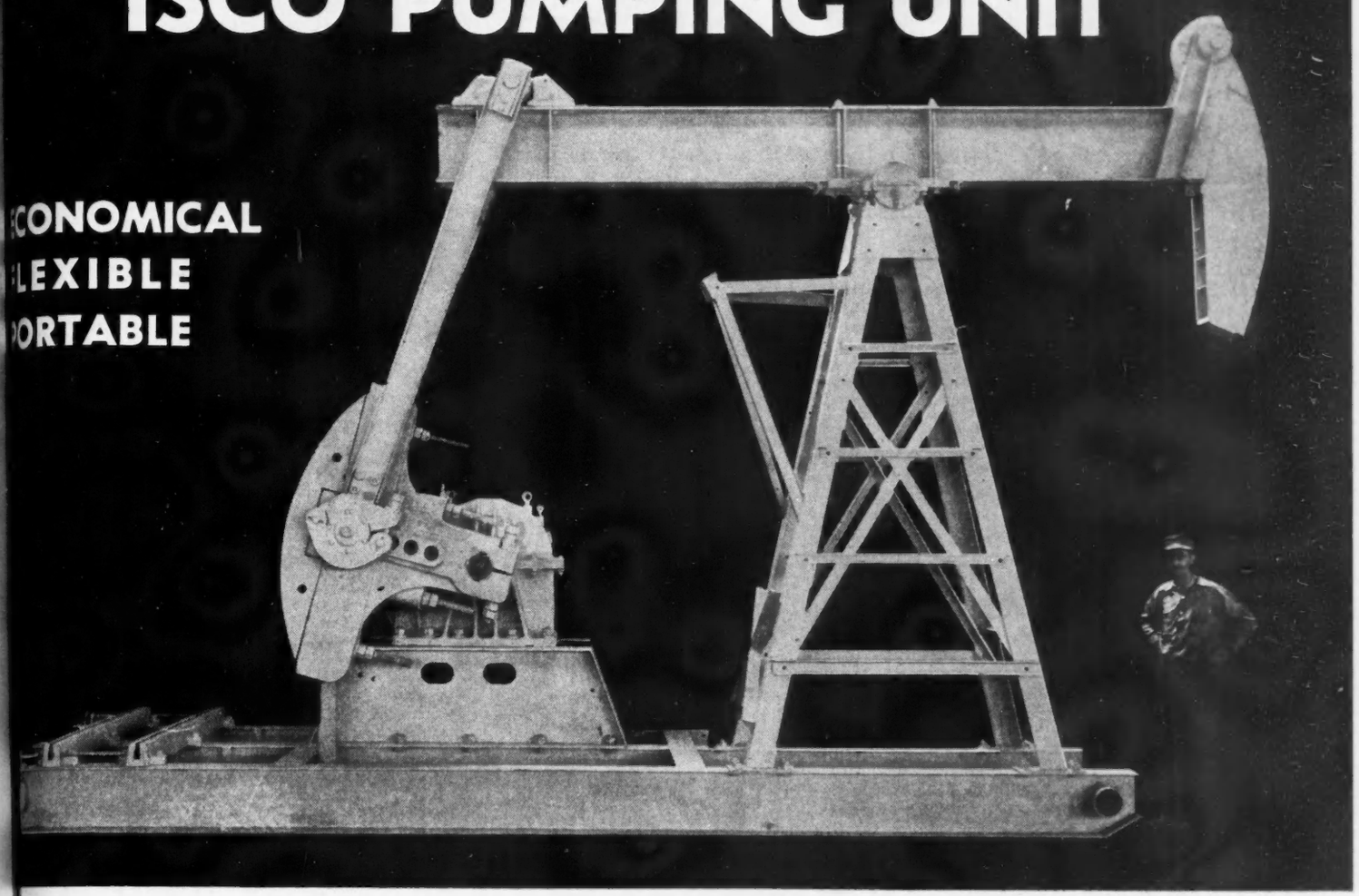

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a 300-barrel producer from the conglomerate at 3550 feet. The discovery well was completed in the Oswald lime. A south offset to Suppes 1 was completed as a dry hole.

Extensive drilling for gas production which had been planned for the Hugeton areas of Stevens County, Kansas and Texas County, Oklahoma, may be halted as individuals seeking to erect a carbon black plant in the area to utilize the gas, are meeting legal opposition. Some 30 wells had been planned for the region. One new producer has been completed in the area however, and another was being started. Stevens County Oil & Gas Company's Slease 1 CS½ NE SE 35-33s-39w, southwest of Feterita, was showing for 12,000,000 cubic feet of gas from sand at 2750 feet. A new test is that of Benedum & Trees Oil Company at Wheeler-Watkins 1 CSE 35-34s-38w, in the Hugoton field, a location at present.

An attempt to lengthen the Bolton extension of the Geneseo pool of Rice County is being made at Continent Oil Company's Warner 1, NEc NW NW 6-19s-7w, three-quarters of a mile southwest of the discovery producer of the area. It was a location.

The Texas Company et al's Kipp 1, SEc NE 27-25s-14w, the well which opened the Kipp pool of Stafford County, was given a 120-day retest and produced 2109 barrels of oil daily from the Kansas City lime. It was originally completed for 1266 barrels of oil. The test was supported by Skelly Oil Company and Columbian Fuel Company with The Texas Company as operator.

Republic Natural Gas Company's Romine 1, NWc 18-17s-17w, an east offset to the discovery producer in the Cress pool of Ellis County, was completed last week for a pumping potential of 1780 barrels of oil from the Siliceous lime at 3290½ feet. It is believed the well will be good for more than 2300 barrels of oil daily. Another test is being planned.

Lario Oil & Gas Company's Marshall 3, in Section 31-11s-17w, in the Marshall pool, rated a potential of 2716 barrels of oil from 3705 feet in the Siliceous lime. The well was acidized with 4500 gallons. The well made only one-quarter of a barrel of oil per hour before acidization.

Skelly Oil Company's Neidens 5, SW NW SE 32-15s-13w, in the Trapp pool of Russell County, established a potential of 1689 barrels of oil, based on a 12-hour pumping test during which time the well made 844 barrels of oil.

Shell Petroleum Corporation's Schneider 1, CSE 12-16s-14w, south of production in the Trapp pool, cored from 2941 to 2943 feet and had a stain of oil. Lime was recovered in a seven-foot core taken from between 2943 and 2953 feet, but had no show. It is drilling deeper.

The Texas Company's Harper 1, NE SW SE 9-20s-3w, four miles north of Conway Springs in Sumner County, failed to make a producer in the Mississippi lime and was abandoned last week. Carried to 4386 feet in the Siliceous lime and finding the formation dry, the well was plugged back to 3898 feet and acidized a show of oil with 2000 gallons. It made one-half bailer of oil and a considerable amount of water.

The southern limit of production for the Shallow Water pool of Scott County was apparently established last week as Atlantic Refining Company's Mark 1-C, CNE SE 15-20s-33w, was dry at 5490 feet in the Siliceous lime. The well was located one-quarter mile south of the discovery producer in the Shallow Water pool, which produces from the Mississippi lime.

Skelly Oil Company's Bloomer 9, SW SE NE 36-17s-11w, twin well to the company's Bloomer 6, drilled to 3070½ feet in the Kansas City lime and was acidized with 5000 gallons. During a six-hour test the well made 1268 barrels of oil and 4,000,000 cubic feet of gas. Preliminary potential was set at 4565 barrels of oil. Yarnell & Spencer's Patzner 1-A, NWc SE 36-17s-11w, received a potential of 3107 barrels of oil following a flow of 1593 barrels of oil during a 12-hour test.

A test which is being watched with some interest is Pryor & Lockhart et al's Gant 1, CSE 7-31s-13w, northwest of Medicine Lodge in Barber County. Six-inch casing was set at 4428 feet in the top of the Viola lime where a showing of oil was had. The hole was bottomed at 4438 feet. It is located northwest of production in the Whelan pool.

New Russell Field

What appears to be a new pool has been opened in south central Russell County by Shields et al's Letsch 1, 27-14s-13w, about ¾-mile northeast of Letsch pool. Further developments may prove the late producer is an extension of the older pool. After being plugged back from 3117 feet in Siliceous, the well made 1245 barrels on pump after treating Lansing lime between 2805 and 2935 with 6000 gallons of acid.

61 completions and 56 locations in Kansas

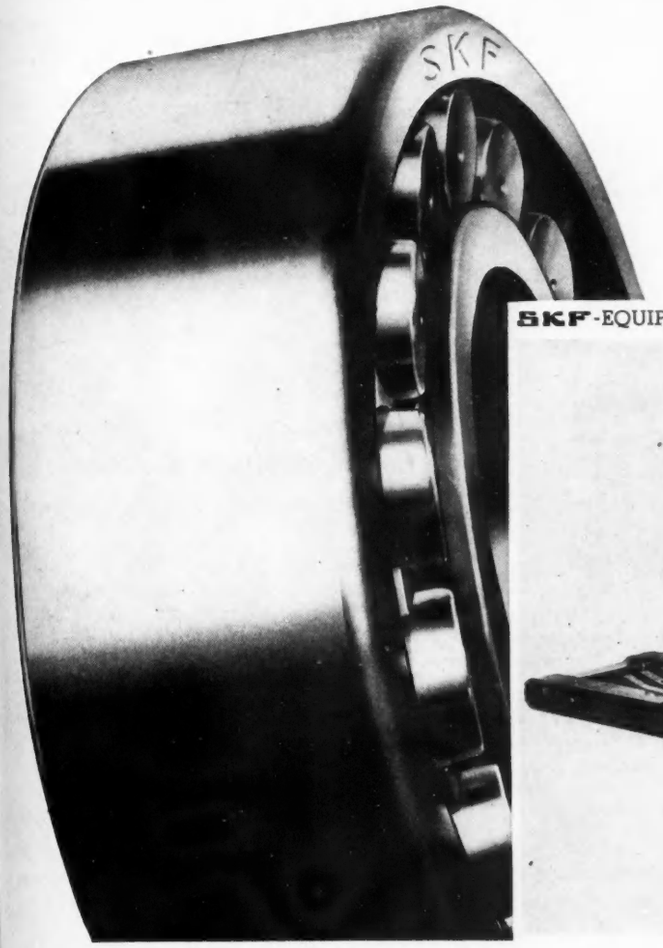
Wichita.—There were 61 completions in Kansas last week against 56 locations staked. Production of 54,955 barrels was reported from the 46 oil wells of the completion list. There were one gas well and 15 dry holes. By counties locations were distributed as follows: Russell, 15; Rice, 9; Barton, 5; Ellis and Ellsworth, 3 each; Chautauqua, Grant, Greenwood, McPherson, Reno and Steens, 2 each; Barber, Elk, Harper, and Rush, 1 each.

KANSAS
Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
BARTON COUNTY—		
Armas & Vernon, Ainsworth 2, se ne se 33-16s-13w	742	3392
Magnolia, Roetzel 7, ne sw ne 24-20s-11w	1502	3257
BUTLER COUNTY—		
Vickers, Voth 1, csl n½ ne ne 32-24s-4e	*	3295
Morris et al, DeMoss 2-B, ne ne se 5-28s-7e	*	2827
CHAUTAUQUA COUNTY—		
Denman Bros., French 3, nwc se 36-32s-12e	*	2115
Griffen Bell, Jenneret 2, nw ne nw 12-32s-10e	50	2301
COWLEY COUNTY—		
Fred Moore, Radcliffe 1-B, se sw se se 5-33s-7e	120	2834
Ash et al, Botlack 1, se c 22-32s-6e	*	3260
McKnabb, Files 1, 30-32s-5e	250	3079
Aylward, Atkinson 1, us c se 21-32s-5e	*	3145
Lloyd, Frost & Study, Wilson 2, se ne sw 33-31s-3e	2993	3247
EDWARDS COUNTY—		
F. N. Williams et al, Krupp 1, nwc sw 18-24s-19w	*	5135
ELLIS COUNTY—		
British-American, Bemis 7, ne sw sw 22-11s-17w	2827	3482
Margay, Bemis 6-C, se ne sw 22-11s-17w	2487	3487
Lario, Henderson 1, nec 22-11s-17w	*	3587
Bridgeport, Froelich 1, nw c se 4-13s-16w	1154	3267
Texas, Bemis 3-A, nw ne ne 28-11s-17w	2095	3382
ELLSWORTH COUNTY—		
Continental-Empire, Jansen 10-B, sw ne sw 34-17s-8w	312	3253
Phillips, Patzner 1, sw nw sw 30-17s-10w	1632	3300
EDWARDS COUNTY—		
Gulf, Grizzell 5, nwc 31-17s-10w	1160	3289
GREENWOOD COUNTY—		
Huff et al, Esslinger 9, ne sw ne sw 34-22s-13e	75	851
Superior, Jones 11, ne se sw 21-23s-13e	175	1694
Bisagon et al, Rogan 3, sec sw 10-25s-13e	*	1554
Lindbert et al, Webb 20, se ne se 32-26s-13e	6	1852
HARPER COUNTY—		
Carter et al, Seibert 1, c sw nw 4-34s-8w	*	4628
McPHERSON COUNTY—		
Reynolds et al, White 1, nw ne ne 35-18s-1w	*	2871
Ohio, Decker 12, ne se ne 20-21s-1w	533	3343
Continental, Blair 4, se sw sw 21-21s-1w	178	3343
Blair 5, ne sw sw 21-21s-1w	231	3327
RENO COUNTY—		
Pulse et al, Payne 1, se ne ne 4-22s-7w	156	3287
National, Tucker 4, nec nw 19-24s-4w	1255	3386
Phillips, Artle Island 1, ne se ne 19-24s-4w	179	3383
Drillers Gas, Yoder 1, sw nw sw 27-24s-5w	¶6	3450
Owen et al, Evans 2, nw ne nw 25-24s-8w	316	3549
Shell, Lee 4, c sl se 10-26s-9w	3005	4142
Whiffle 8, se nw ne 15-26s-9w	2764	4139
RICE COUNTY—		
Continental, Bryant 1, c e l se 8-18s-7w	*	3281
Lansing 6, sw nw se 25-18s-8w	841	3159
Republic Nat. Gas, Wendell 5-B, sw se se 32-19s-10w	575	3298
Wendell 6-B, se c 32-19s-10w	220	3294
Barnsdall, Hathaway 2, nwc ne 33-19s-10w	2052	3285
Stanolind, Rann'ng 5, ne se nw 33-19s-10w	1947	3296
Buckley et al, Bailey 1, sw c nw 19-20s-6w	*	1009
Tatlock, Drew 6, nec sw 5-20s-10w	752	3332
Atlantic, Hughes 3, nw se se 6-21s-7w	398	3347
Derby, Thede 2, nw se se 8-21s-7w	2035	3160
Sage & Yankey, Gossman 4, se nw nw 9-21s-7w	574	3374
Reserve, Patton 5, nw ne nw 16-21s-7w	5109	3377
ROOKS COUNTY—		
Jones Bros., Wise 1, nwc 8-10s-18w	*	3819
RUSSELL COUNTY—		
Empire, Crawford 14, nw se sw 2-14s-15w	301	3300
Transwestern, Rolcyn 9, nw se se 10-14s-15w	1262	3265
Polcyn 6, se nw sw 11-14s-15w	798	3273
Carter et al, Deitrich 3, sec sw 8-15s-13w	1331	3193
W. I. Southern, Sellens 3, se sw nw 30-15s-13w	2722	3301
Derby et al, Michaelis 6, se sw nw 31-15s-13w	1936	3269
W. I. Southern, Michaelis 8, se nw nw 31-15s-13w	2474	3271
STAFFORD COUNTY—		
Stanolind, Nolte 1, sec sw 30-22s-11w	*	3691
Haxen C-2, nw c 32-22s-11w	1694	3551
Empire, Benton 1, nec sw 23-24s-13w	1542	4106
STEPHENS COUNTY—		
Texas, Tomlin 4, sw nw nw 15-3s-5w	*	1822
SUMNER COUNTY—		
Sinclair-Prairie, Herrick 2, ne nw se 15-35s-2e	170	3431
WOODSON COUNTY—		
Aikmon et al, Massey 2, c n½ se se 35-23s-14e	25	1628

*Failures; †Junked; ¶Million cu. ft. gas.

[See Page 122]



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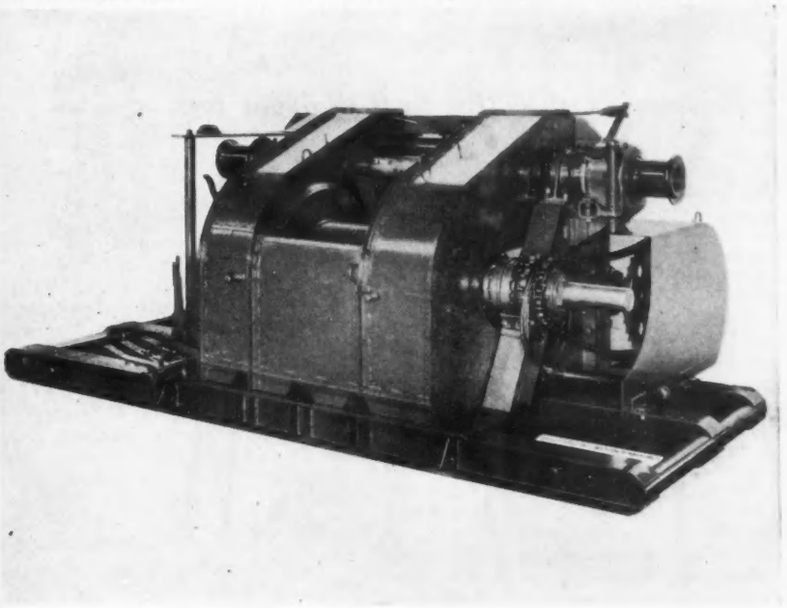

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NORTH AND WEST TEXAS

Jones Ranch is Gaines County hot spot.

* * *

Ordovician is objective in Wilbarger test.

Midland.—A production test was under way late June 18 on Amon G. Carter and Continental Oil Company's Wasson 1, prospective wildcat producer near the north line of Gaines County, with free oil showing while swabbing through tubing at the total depth, 4959 feet. The saturated lime section has been exposed to heavy rotary fluid for more than a week, and owners expect some difficulty in making the well kick off.

Four additional tests have been started in the immediate area. They are located in a northeast-southwest trend for 4½ miles. Wasson 1 is located SW SW NW PSL Section 48, Block AX, about 14 miles west of Seagraves, nearest railroad point.

The original test for the Wasson area cemented 5½-inch pipe at 4779 feet after coring oil stained lime at 4800-4935 feet and saturation at 4935-50 feet, followed by hard lime to 4959 feet, or 410 feet below sea level. Top of first lime stringer was logged at 3830 feet.

Forced to Spud Others

Expiring lease contracts forced the partnership to start operations on G. M. Langdon 1, SE SE NW Section 44, about three miles northeast of their first test, and to spud one test each on intermediate leases. Langdon 1 has cemented 9-inch pipe at 2187 feet, after logging top of anhydrite at 2173 feet, or 1374 feet sub sea. On this marker it is 105 feet lower on structure. Continental Oil Company's Moore 1, SWc Section 46, has cemented 13-inch pipe at 245 feet. Carter et al's Moore 1, SWc Section 47, has not progressed beyond surface pipe. Amerada Petroleum Corporation's Flo Matthews 1, NEc Section 417, Block G, about 1¼ miles southwest of Wasson 1, spudded with machine prior to June 11 to forestall lease expiration, and was drilling with rotary at 115 feet late last week.

E. M. Wahlenmaier-York & Harper, Inc.'s E. H. Jones-Humble 1, C SW SW Section 414, Block G, about five miles southeast of Wasson 1, and a failure at 5224 feet, provided the subsurface correlation, having logged top of Yates at 3190 feet and top of lime at 4980 feet, with an elevation of 3528 feet. Operations were halted before reaching water.

The Jones ranch in northwestern Gaines County has developed into a "hot spot" through the drilling of Continental Oil Company's E. H. Jones 1, C SE NE Section 22, Block A-7, PSL Survey, which showed gas in Yates sand, topped at 3140 feet, or 510 feet above sea level, and was drilling in lime at 4330 feet. It is about 72 feet higher structurally than Wahlenmaier et al's failure, located about seven miles east by south, on the Yates marker, affording sufficient structural relief to command attention. Argo Oil Corporation's E. H. Jones 1, C NE¼ Section 2, Block A-7, about 4¼ miles north by east of Continental Jones 1, topped anhydrite at 2080 feet, or about level with the latter, and will change to cable tools at 2095 feet.

Seminole Outpost Low

Amerada Petroleum Corporation's Kasken 1, C NW NW W. T. Ry. Section 160, Block G, Gaines County, and about 4-1/3 miles southeast of the discovery oil producer for the Seminole geophysical prospect, was drilling in lime at 4890 feet after cleaning up fishing job. Top of lime stringer was logged at 4280 feet, or 997 feet sub sea. It is lower stuctually than the Seminole wells.

Operations are underway on two wildcats in Yoakum County, and a pair of tests are nearing the oil level in the Bennett pool, located in the southwest portion of the county. Texas Pacific Coal & Oil Company's Bennett 2, NWc Section 678, Block D, a short distance northwest of production, was drilling at 4660 feet. Honolulu Oil Corporation's Bennett 1, NEc Section 677, west offset to the latter, was drilling at 4950 feet, with an elevation of 3567 feet. Magnolia Petroleum Company's Taylor 1, NEc Section 201, Block D, was making new hole at 4030 feet with cable tools after correcting depth. Top of Yates was called at 3040 feet, or plus 567 feet. Bahan, Rhodes & Fitzpatrick's Shook 1, C NE Section 420, Block D, was drilling in lime at 5260 feet, with trace of oil reported at 5080-90 feet. Contract has been awarded by The Texas Company for the immediate drilling of W. F. Walker 1, C SE SE Section 794, Block D, near southwest corner of the county. The latter has a ground elevation of 3644 feet. Two groups of independents have contracted to drill tests on separate blocks to the northeast of the latter project.

Owners of completed wells in Gaines and Yoakum counties have lately refused to sell their oil on contract for tank car movement on the strength of the possibility of Humble Pipe Line Company's starting work shortly on a crude line north from the Means field, Andrews County.

Appearance of sulphur water in lime at 4970 feet, or 1881 feet sub sea, dimmed the outlook for Ernest L. Wilson et al's Texas Land & Mortgage Company 1, located 1½ miles south by east of the discovery well of the Albaugh area, Dawson County. The original well logged first saturation at 4944 feet, or 1859 feet sub sea, and did not develop any appreciable volume of water until carried to 5038 feet, where it was completed as a small pumper.

Amerada to drill Wilbarger County test to Ordovician

Wichita Falls.—Ordovician lime is to be the objective of a northern Wilbarger County wildcat taken over by Amerada Petroleum Corporation and a group of majors from F. A. Lain et al on the Mrs. Jennie Coffee tract, NW¼ H&TC Section 44, Block 15, about 10 miles northeast of Vernon. Lain et al originally fulfilled a 3500-foot contract, and financed deepening operations to 6041 feet, where the group has taken charge to explore the deep zones.

Canyon Lime Paying

The Canyon lime horizon in the Rock Crossing field, Wilbarger County, continues to yield prolific oil wells from the 3050-foot level. Phillips Petroleum Company and Humble Oil & Refining Company have each recorded three completions on adjoining leases. The former's W. T. Waggoner Estate 195, SEc H&TC Section 45, Block 4, gauged 1203 barrels potential through 5/8-inch choke for an allowable of 92 barrels daily. Saturation at 3010-27 feet flowed 103 barrels per hour open after perforating 7-inch pipe cemented at 3049 feet, and deepening to the second zone at 3060-69 feet for completion. It has an elevation of 1163 feet. Phillips Petroleum Company's W. T. Waggoner Estate 194 is in process of completion at 3054 feet.

Lower Canyon Proven For Oil

Humble Oil & Refining Company's W. T. Waggoner Estate 14-H used 2000 gallons of acid in saturated zone at 3036-48 feet, and flowed 60 barrels per hour. W. W. McDonald and R. B. Campbell's W. T. Waggoner Estate 3-A, NEc Section 26, about 2¾ miles southeast of the above producers, passed up potential production in the upper Canyon lime to comply with dry hole contribution requirements in exploring the lower Canyon, and is repairing damaged casing after a nitro shot at 3640 feet. It has proved the lower Canyon for oil production.

A preliminary production test given L. T. Burns et al's H. Sanzenbacher 1, near SWc of 1750-acre lease, L. N. Sparks Survey, Clay County, and about 9 miles southwest of recent deep oil strike by Walter H. Gant et al on the Worsham ranch, failed to yield commercial production when tested through casing. Sandy-lime zone cored at 3900-3906 feet registered favorable saturation and caused a scramble for lease and royalty protection in the area. Gant et al's Worsham 3, which opened a deep

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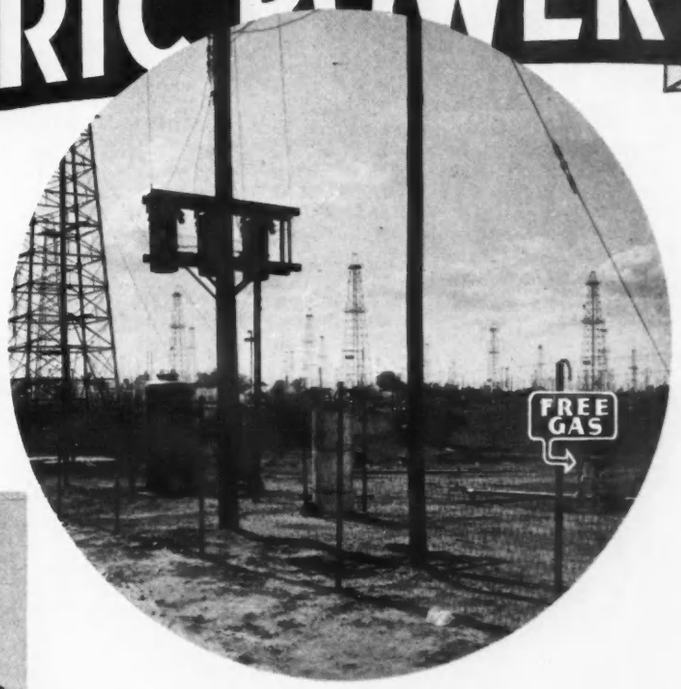

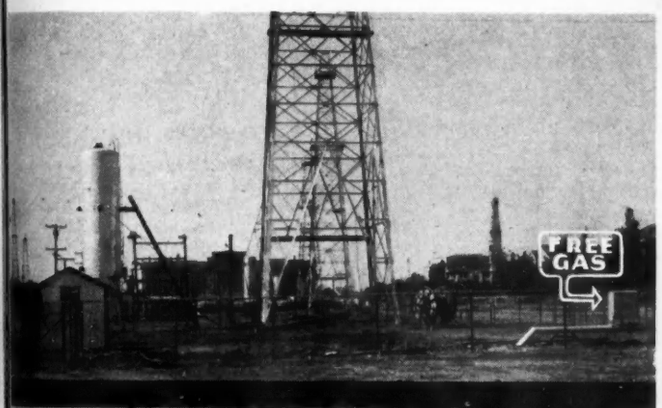

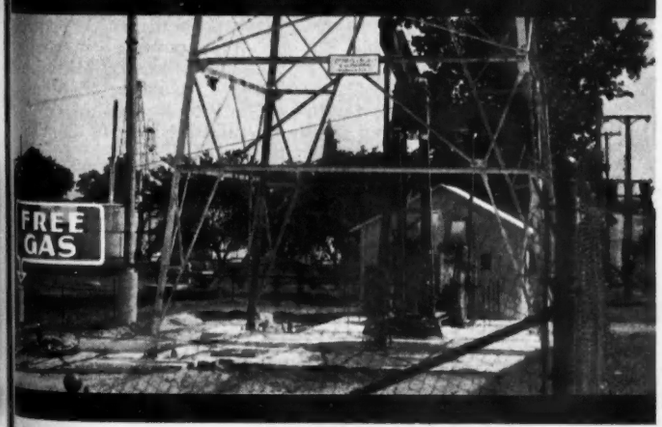

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zone for the Worsham area at 3920-27 feet, has been allotted an allowable of 125 barrels daily. Magnolia Pipe Line Company layed 2¼ miles of 2-inch line to purchase this 45.8 gravity oil.

Denton County regained its position as a gas producing county when Bolivar Drilling Company's J. P. Knox 2, R. Howard Survey, about 1½ miles northwest of Bolivar, gauged 18,200,000 feet of gas with oil spray from sand at 1470-1501 feet. The company's first test on the lease made a small gas well last January at 1951-1957 feet after passing up a gas show at 1538-39 feet, but the production declined rapidly, and tested only 775 Btu.'s.

Mason field extension test develops oil in Delaware

San Angelo, Texas.—Expansion of the Mason field, Loving County, about 1¾ miles west by south materialized last week when D. J. Finley and A. W. Cherry's W. D. Johnson 1, NW NE SE of T.P. Section 24, Block 56, Township 1, developed free oil in the hole from the Delaware zone at 3634-50 feet, with the hole bottomed at 3670 feet. The hole filled 40 feet with oil in five hours. The producing horizon was found about 200 feet higher structurally than in the two completed flowing wells of Michigan Oil & Gas Company.

Stanolind Oil & Gas Company's M. Kyle 1, south offset to the Mason discovery, is showing for a small producer after plugging back from 3984 feet to 3946 feet, having previously been shot with nitro when bottomed at 3930 feet.

Humble Oil & Refining Company's Gray 1, western Pecos County wildcat, logged small gas show in Delaware black lime at 5107 feet, with an elevation of 3592 feet, but no additional showings appeared in drilling to 5250 feet. F. C. Dodson, Duffey et al's Texas American Syndicate 1-A, northern Brewster County deep prospect, recovered oil stained sandy-shale at 4365-70 feet, and is drilling below 4400 feet.

Nearing Ordovician

Second test for Ordovician lime production on the Massie-Todd geophysical prospect, Crockett County, being drilled by Superior Oil Company et al's Massie Unit 1 was drilling at 6400 feet, with about 600 feet of additional hole to make before entering the lime section. Sand Hills field, Crane County, is receiving the bulk of the Ordovician activity, with four tests underway on the north portion of the area, and a fifth project immediately to the north. Gulf Oil Corporation's W. N. Waddell et al 5, south offset to the company's largest deep producer, was drilling at 3730 feet, and Waddell et al 3, located 1½ miles north of regular production, missed the 4400- and 4600-foot oil and gas zones, and was drilling at 4800 feet. This concern's McKnight 2, C NE Section 9, Block B-21, PSL Survey, is preparing to lower 5½-inch pipe, with the hole bottomed at 5404 feet. Tests have also been started by Loffland Brothers Company, and Sinclair Prairie Oil Company et al for the deep level.

An Ordovician test proposed for the Goodman ranch in Southwestern Ector County by Pete N. Wiggins, Jr. and H. H. Lawson will not be drilled, according to the Dallas operators, since nearby lease owners are generally cold on the project.

University regents favor more school land wells

Austin.—From a new source has come support for the Texas Railroad Commission's apparent favoritism to closer spacing of wells—the University of Texas.

Speaking for regents of the University of Texas, Major J. R. Parten, regent and oil operator, appeared at a commission hearing last week to urge a 10-acre spacing rule for the Jordan area of Waddell field, backing up the request of Sinclair-Prairie Oil Company, at whose request the hearing was held about 10 days ago.

Parten came in after it had been thought the hearing was closed and asked special permission to present the university's theory in regard to Permian basin drilling.

Afterwards he told an Oil Weekly representative that regents planned to take an active interest in spacing and other field rules for all fields wholly or in part on university land. It is the first time, so far as he or other observers could remember, that the university has actively participated in a spacing rule hearing.

Royalty Protection Motive

The University's theory was presented by Dr. H. P. Bybee of the university. He said that most of the lime production in the Permian basin was from what may be termed cavities in the lime. A well hitting a cavity squarely likely would be a highly productive well. One on the edge would be less productive, less likely to drain the cavity. Acid treatment of the lime is effective only to a limited extent.

If wells are closer spaced, he said, the odds are increased that the richly productive strata will be tapped; conversely, it is less likely if the wells are spaced farther apart. Hence the university feels that a 10-acre rule would be a greater protection to its royalty interests than a 20-acre rule.

Sinclair-Prairie wants 10-acre spacing for Keystone field

Austin.—Railroad Commission engineers are studying the request of Sinclair Prairie Oil Company for a 10-acre spacing rule in the Keystone field, submitted at a hearing this week.

All other operators in the field, including Gulf Oil Corporation, Falcon Oil Company and Sun Oil Company, asked that the present 440-880 spacing rule be left unchanged.

Testimony revealed that spacing is now spotted, with several 440-880 wells; a number located 330 feet from lease lines; still others, corner wells, located 330 feet from one line and 440 from the other; and still others which started out as 330 wells but which, due to a resurvey, now range from 92 feet from the lease line up to some 400 feet.

All operators agreed upon an amendment to the rules under which the present requirement of 1100 feet of surface casing would be applicable only to that portion of the field where the gas cap exists. On the flank sands, 400 feet of surface casing would be required. The amendment will be instituted as soon as maps are prepared showing the extent of the gas cap and where less casing can be safely used.

Texas house votes out "hot oil" resolution

Austin.—During the past week, the unpredictable Texas House killed the resolution proposing another "hot oil" investigation.

Earlier votes presaging approval of the resolution, which Representative Augustine Celaya of Brownsville, chairman of a former committee sponsored, were borne out when the House, at a morning session, voted 60 to 56 to hold the investigation. Then, in the afternoon, the House completely backtracked, re-considered its vote of approval, loaded the Celaya resolution down with amendments, and then delayed a final vote until June 26. The 30-day session automatically comes to an end June 25.

Defeat of the resolution, which was not opposed by representatives of the oil industry stationed at Austin, was generally attributed to mistaken strategy on Celaya's part. After counting votes, he decided he had enough to pass it, and pushed it through the House without a single amendment, cutting off all debate and explanation of proposed amendments.

This gave opponents of the resolution the opportunity they sought. At the afternoon session, on the motion for reconsideration, an opportunity for debate was furnished. Herman Jones of Decatur explained what he wanted to do: Prevent the committee from accepting contributions of funds from

University of Texas

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In Crane, Ector, Andrews, Upton, Crockett and Pecos counties offered at public auction June 25, 1937, at the Highway Building Hearing Room, Austin, Texas.

For additional information, write to the Secretary, Board for Lease of University Lands, University Station, Austin, Texas.

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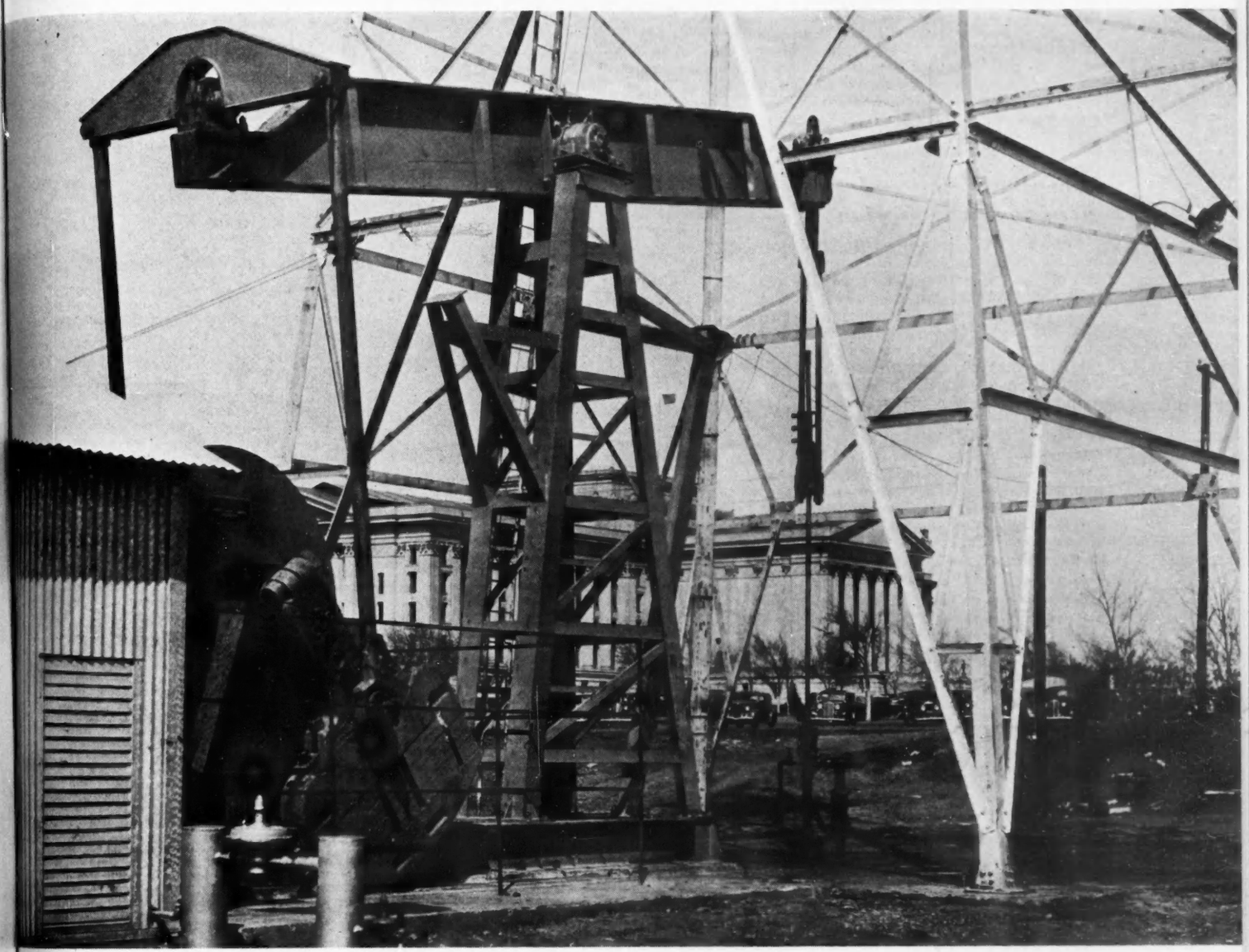

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major companies, on the promise that the committee wouldn't bite the hand that was feeding it; make it complete its work by December 31, so that it could not get into the 1938 political campaigns; forbid it from endorsing or opposing any candidate for a public office; require a quorum of the committee to be present whenever testimony was taken. Jones painted a black picture of opposition to such amendments and the House agreed with him. They adopted all these, still another to give the investigation to the already-created committee to investigate West Texas crude prices, and then postponed the vote.

Reorganizing oil and gas division of commission

Austin. — An interdepartmental reorganization was virtually completed in the oil and gas division of the Texas Railroad Commission this week, as the chief engineer's office was removed to new offices a block from the capitol building.

Under the reorganization plan. V. E. Cottingham, as director of production, will take over the oil accounting department which has been under the direction of Olin Culberson.

Clinton Owsley, who has been actively in charge of the oil accounting, will be succeeded by Herman Heard, heretofore a valuation engineer for the gas utilities division.

Culberson will devote his entire time to gas utilities, and Owsley will be one of Culberson's chief assistants.

NORTH TEXAS Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
ARCHER COUNTY—		
Alexander & Killion, R. O. Andrews 3, sec 1399	7	930
L. T. Burns et al, J. L. Prideaux 1, sec 1868	5	815
J. L. Prideaux 2, sec 1868	*	925
Dick Duncan et al, N. I. Andrews 3, blk 18	50	988
Golding & Cochran, J. M. Kunkle 3, blk 8	*	1157
S. H. Huggins et al, W. Ford 5-B, sec 4	*	1110
Rathke Oil Co., W. O. Hayter 1-D, sec 1598	10	1335
The Texas Co., T. B. Wilson 2-C	*	1740
Wichita Prod. Co., W. D. Pace 4, sec 163	10	1279
CLAY COUNTY—		
Bridwell Oil Co., J. Stevenson 5, blk 2	*	1336
J. Stevenson 6, lot 56	*	665
COOKE COUNTY—		
Dove Oil Co., J. A. Carr 14	469	1956
E. L. Gill et al, Mary Luke 1	*	1345
Sinclair Prairie, J. Hess 1	12	908
The Texas Co., F. J. Trubenback 1-B	*	1818
JACK COUNTY—		
Cato Oil Co., J. A. Raley 6-B	271	3030
Barney Cockburn et al, Ann Roberts 1	50	3045
R. H. Dearing & Son, J. A. Raley 3-B	405	3239
Garvin et al, M. K. Graham 1	*	3305
Hamilton Pet. Co. et al, J. S. Rhodes 1-A	213	2376
Hanlon & Buchanan, Inc., F. H. Rhodes 2	100	2294
E. M. Sampley 3	620	2976
Indiana Oil Co., Kate Moore 1	20	3030
Kimberlin & Howse, Mrs. A. Williams 1	21	3034
Martex Oil Co., W. J. Chambers 10	400	2944
Moncrief & Showers, S. M. Jones 2	349	3211
Murray & Sessions, Mrs. S. D. Stevenson 1	22	3080
Ohio Fuel Supply Co., A. B. Kuykendall 1-A	372	2940
Pacific Western Oil Corp., G. M. Helvey 3	127	2990
O. J. Perren et al, Clayton Bros. 1	88	3043
Texas Plains Oil Co., W. H. Terrell 7-B	*	780
MONTAGUE COUNTY—		
Arco Oil Co., Salmon 9-E	81	1679
Continental, Roland 14-A	*	978
Conoco-Seitz et al, E. W. Johns 2	*	2384
Perkins-Cullum Oil Co., M. H. Salmon 5	34	930
Sinclair Prairie et al, D. T. Holt 11, blk 45	150	1874
D. T. Holt 12, blk 45	100	1728
Sinclair Prairie, N. Keck 1, sec 34	124	1717
The Texas Co., Cunningham 18-A	72	939
J. E. Lemons 5	*	948
WICHITA COUNTY—		
Christie-Hickman Drlg. Co., A. B. Van Meter-Logan 1	480	3906
G. W. Cooper et al, Waggoner Bros. 46, sec 2	60	1893
Deep Oil Dev. Co.-Seaboard O&G Co., Munger 1	534	3866
Perkins-Cullum Oil Co., S. B. Burnett 31, sec 5	*	1605
Pois & Schulz, Foster-Allen 2-E, sec 2	*	1296
Geo. Proctor et al, Foster-Allen 10-A	250	1688
O. J. Richardson et al, Waggoner Bros. 1, sec 35	4	634
WILBARGER COUNTY—		
Fain-McGaha Oil Corp., W. T. Waggoner Est. 7-E, sec 51	*	1963
Phillips Pet. Co., W. T. Waggoner Est. 195, sec 45	2400	3069
YOUNG COUNTY—		
Alexander & Nunnley, H. O. Prideaux 3, lot 15	*	551
F. J. Albrittain et al, F. M. Gilmore 10, blk 14	5	593
Frank W. Bennett et al, T. E. Mathews 1	*	4200
Collins & Fitzwater, J. L. Castleman 1, sec 72	*	1287
Bob Elmore et al, W. H. George 1, sec 106	*	1605
Iron Mountain Oil Co., R. D. Webb 1, sec 3	*	853
C. A. Lupton et al, J. F. Hall 1, blk 86	*	4250
N. H. Martin & Knight, G. B. Hamilton 2-C, sec 1394	*	952
W. A. Quillen et al, H. C. Vance 1, sec 2717	*	605
R. E. Skinner et al, C. M. Rickman 1, sec 2389	*	1205
T. L. Wheeler et al, S. R. Jeffery 3-C, sec 50	*	831

*Failures; †Junked; ¶Million cu. ft. gas.

WEST TEXAS Completions

Company, Well, Location	Init. Prod. Bbls.	Depth
ANDREWS COUNTY (Fuhrman)—		
Standard Oil Co. of Texas, C. Gray 1	216	4480
ANDREWS COUNTY (Means)—		
Humble, J. S. Means 24	569	4526
CRANE COUNTY (McCamey)—		
Donnelly & Sindorf Drlg. Co., L. Taylor 2-B	850	2125
Enniscrane Prod. Corp., Hughes 2-C	1050	2090
Superior Oil Co. (Cal.), Hughes 5	711	2269
Texas Consolidated Oil Co., Hughes-TT Co. 6	450	2077
ECTOR COUNTY (Foster)—		
Broderick & Calvert, Inc., J. L. Johnson 3	823	4267
Amon G. Carter et al, J. L. Johnson 2	547	4200
York & Harper-Sloan-Zook Co., Buchanan 1	*	4545
ECTOR COUTY (Goldsmith)—		
Atlantic Ref. Co., H. E. Cummins 3-B	426	4255
Devonian Oil Co, C. Scharbauer 1-D	745	4203
Landreth Oil Corp, C. Scharbauer 2-H	1910	4220
C. Scharbauer 2-I	1049	4220
Phillips Pet. Co.-Pure Oil Co., C. Cowden 10	2823	4159
Shasta-Cordova Union Oil Corp., Scharbauer 2	539	4223
Shasta Oil Co., C. Scharbauer 2-C	924	4221
TP Coal & Oil Co., C. Scharbauer 3	652	4273
ECTOR COUNTY (Judkins)—		
Skelly Oil Co., W. E. Connell 2	352	3600
ECTOR COUNTY (North Cowden)—		
Atlantic-Tide Water-Skelly, Blakeney 4-A	366	4250
Empire O&R Co., B. H. Blakeney 2-A	425	4250
FISHER COUNTY (Royston)—		
The Texas Co. et al, T. A. Jean 6	65	3103
HOWARD COUNTY—		
Conoco-Group 1 Oil Corp., Settles 34-S	454	1294
Shasta Oil Co., C. Echols-Texas L&M Co. 1	69	2880
JONES COUNTY—		
Fain-McGaha Oil Corp.-Ungren & Frazier, J. E. Garland 1	*	2560
Thos. D. Humphrey, H. Dorsey 18-A	250	2216
Ungren & Frazier, Dorsey 4-A	2200	2202
J. W. Jennings 13	380	2050
PECOS COUNTY (Pecos Valley)—		
Aero Gas Ref. Co., J. K. P. Campbell 1	10	1802
PECOS COUNTY (Yates)—		
Ohio Oil Co., I. G. Yates 40-B	32,616	1374
I. G Yates 12-D	53,280	1272
UPTON COUNTY (McCamey)—		
Basin Oil Properties, Inc., Baker 2-D	413	2404
British-American O. P. Co., Robbins 8	634	2304
L. H. Choate & Hogan, Sanger-Conoco 1	590	2305
J. W. Ellis et al, Robbins 6	630	2132
A. R. Eppenauer et al, J. F. Lane-Pure 3-B	164	2165
Jerome McLester et al, Burleson-Conoco 1-B	103	2122
J. S. Pittman et al, D. Elder 1	400	2367
Powell Gap Oil Co., J. F. Lane 4	798	2153
Ursula Oil Co., King Ranch 3	90	2168
TP Coal & Oil Co., J. F. Lane 2-B, Acct. 2	325	2199
J. F. Lane 16-C	147	2304
WARD COUNTY—		
Amerada Pet. Corp., W. W. McDonald 4	729	2474
FHE Oil Co., L. Richter 4-B	3563	2952
Gen'l Crude Oil Co., J. F. Hathaway 1	409	2653
Gulf, E. W. Estes 31	1811	2620
Hutchings 79	713	2750
G. W. O'Brien 83	726	2767
J. P. Kittrell et al, F. R. Stewart 4	5	2501
Lindsay Drl. Co.-Bolin, Hardage-Wilson 4-A	309	2452
Rio Bravo Oil Co., D. Olcott 22	1622	2528
Standard Oil Co. (Tex.), A. B. Gordon 39	257	2525
I. B. McFarland 7, sec 37	2081	2658
Tide Water Associated, W. D. Johnson 30	1555	2661
WINKLER COUNTY (Kermit)—		
Emperor Oil Co., McCabe-Cowden 1	27	3019
Empire O&R Co., Daugherty 8-D	447	3030
Gulf, Daugherty 41	605	3142
Daugherty 44	1737	3020
Humble, N. R. Colby 18-A	1022	3115
N. R. Colby 4-B	466	3020
W. A. McCutcheon 8	764	3021
Illinois Oil Co., Abilene Bank-Conoco 9-A	2030	3110
Magnolia, J. B. Walton 79	327	3246
Skelly Oil Co., N. R. Colby 7	750	3100
WINKLER COUNTY (Keystone)—		
The Falcon Co., McCutcheon-Humble 10	499	3550
Wm. Little et al, J. B. Walton-Pure 1	403	3396

*Failures; †Junked; ¶Million cu. ft. gas.

TEXAS PANHANDLE Completions

Company, Well and Location	Init. Prod. Bbls	Depth
CARSON COUNTY—		
Empire O&R Co., Magnolia Pet. 11-D	366	3088
The Texas Co., E. Cooper 4	425	3170
GRAY COUNTY—		
F. W. Dye et al, A. Holmes 2	620	3291
Empire O&R Co., W. E. Crow 4	900	3262
Humble, T. B. Haggard 4	636	4255
P. A. Tharp & Dawson, J. C. Short 3	710	3088
HUTCHINSON COUNTY—		
McIlroy Oil Co.-Herrmann Bros. & Dunigan, Haile 2	890	3065
Owl Oil Corp., J. W. Moore 7	627	3116
Phillips Pet. Co., Cockrell 20	334	3066
Good'n 1	209	3085
Stanolind, H. C. Pitcher 8-A	440	3133
MOORE COUNTY—		
Continental, Chas. Maier 1	¶91.9	3143
W. W. Burnett 1	¶34.5	3260
Phillips Pet. Co., Reeder 2	¶72.4	3269
POTTER COUNTY—		
Canadian River Gas Co., Lee Bivins 20-A	¶12.2	2878
WHEELER COUNTY—		
Skelly Oil Co., Perkins-Cullum 2-C	¶3½ & 24	2498

*Failures; †Junked; ¶Million cu. ft. gas.

EAST TEXAS

Trinity test on Opelika structure running high.

* * *

Cayuga outpost gauges 103 barrels through choke.

* * *

Paleozoic probable goal of Hunt County wildcat.

Palestine.—The second Trinity test underway on the Opelika structure, Henderson County's only deep oil area, is recording a higher structural position, although nominal, than the junked producer. Tide Water Associated Oil Company et al's McElreath-Suggett 2-C, SEc of 149-acre tract and about 880 feet southeast of their first project, was coring for Woodbine late last week after logging Austin chalk at 3750-4160 feet, with an elevation of 452 feet. On base of chalk it was 10 feet higher than McElreath-Suggett 1-C, which was junked at 7195 feet without a decisive production test. However, the latter continues to flow from 8 to 10 barrels oil daily average by heads through partially clogged hole.

Cayuga Flank Test Running Casing

Casing was due to be run in Roeser-Pendleton, Incorporated's Bowyer 3, prospective oil ad gas producer from the lower Trinity on west flank of the Cayuga field, Anderson County, after taking in all the known producing zones in drilling to 7676 feet. This third Trinity project for the field was reported last week as showing free oil with gas when a formation tester was used in the Glen Rose at 7603-58 feet, with an elevation of 317 feet. It is about 130 feet lower on structure than a prolific gas-distillate producer, situated 1¼ miles to the southeast.

Sun Oil Company's R. R. Watkins 1, outpost producer from the Woodbine on the north end of Cayuga, gauged 103.14 barrels oil initial on ⅛-inch choke from two feet of sand topped at 4118 feet, or 3771 feet sub sea. It was carried to the approximate water level before logging saturation. Rig has been skidded for a second test.

Will Be Distillate Well

American Liberty Oil Company et al's W. L. Moody 1, third test for the Grapeland area, Houston County, is destined to be completed as a gas-distillate producer since deeper drilling failed to yield oil production from the Woodbine. It is located near NEc of 55-acre lease, S. C. Parker survey, and 7500 feet northwest of their discovery producer. Moody 1 logged base of Austin chalk at 5886 feet, with an elevation of 451 feet, and top of Woodbine at 5988 fet. A formation tester used at 5995-6011 feet showed gas and distillate, and soft sand was reported in coring to 6019 feet. It is scheduled to core to the approximate water level established by the company's second producer before running pipe for completion. American Liberty Oil Company is under contract to drill another test as part consideration of its purchase of controlling interest in the discovery well and drilling block.

Sulphur Bluff asks for straight per well allowable

Austin.—Sulphur Bluff operators at a special hearing before the Texas Railroad Commission asked that a straight per well allowable be substituted for the present potential basis.

Representing the operators association, W. J. Goldston told the commission this change was asked to deter operators from drilling too near the water in order to increase their potentials.

It is a water drive field with no gas cap.

It was agreed to accept an allowable based upon 50 percent to acreage and 50 percent to the well, which will be what the operators want so long as no well is drilled on a small tract. The field now has a uniform ten-acre pattern.

Wildcat on Talco fault trend structure tops Georgetown

Talco, Texas.—Housh & Thompson, Inc. et al's A. B. Spencer 1, Hopkins County wildcat on the Talco-Sulphur Bluff fault trend, logged top of the Georgetown lime at 3836 feet, or 3332 feet below sea level, and was drilling in hard lime at 3900 feet. This test is about 5½ miles southwest of Sulphur Bluff field, and is testing a structure that occupies an echlon position to the latter area. Spencer 1 is in SEc of 92.9-acre lease, G. Linceum Survey.

Seeking Deeper Production

Seeking lower Trinity production in Talco field, Magnolia Petroleum Company's Chapman 2, offset to the easternmost producer, was drilling at 5360 feet, and will begin coring at 5600 feet. Development of attractive production from the lower Trinity would set in motion a major drilling program at Talco, as there are many small leases and drilling sites that would participate. Paluxy production at Talco embraces a large area for a fault line field. It has a maximum width of two miles, and extends in a general east and west direction parallel to the fault for 12 miles, with the west end open for extensions.

Humble Oil & Refining Company's L. Stephenson 3, located on 88.1-acre tract, I. P. Stern Survey, and immediately southeast of the town, pumped 90 percent water on completion gauge at 4264 feet, and is coring at 4325 feet in search of an oil zone in the lower Paluxy. This test logged Goodland lime at 4149-62 feet, with an elevation of 338 feet.

Stanolind Oil & Gas Company's Hawks 1, located on the Campbell faulted structure, Hunt County, is destined to become a sub-Trinity test, with the Paleozoic as a probable goal. It was due to resume drilling late last week after cleaning up fishing job at 6550 feet. Top of Travis Peak red beds was logged at 5965 feet, with an elevation of 566 feet. No test in the Woodbine basin has drilled through the Travis Peak zone.

Texas Permits Increase

Austin.—The Texas Railroad Commission approved last week permits for drilling 487 new wells in Texas, 176 more than were allowed the week before.

In the East Texas field there were 116 new locations, including 74 in Gregg and 26 in Rusk County. The East Central Texas district reported 44 locations, 13 being in Titus County.

West Texas reported 100 permits with 29 in Ward County, 15 in Winkler, and 22 in Ector County. The Panhandle area reported 31 permits, 11 being in Gray County.

There were 25 locations from the North Texas district, with 18 in Jack County. West Central Texas listed 24 locations, including 12 in Shackelford County.

There were 91 permits for wells in the Gulf Coast district, 14 being in Brazoria County and 12 in Jefferson County. Southwest Texas reported 56 permits, with 20 in Webb County and 17 in Duval County.

EAST TEXAS Completions

Company, Well and Location	Init. Prod. Bbls	Depth
JOINER AREA—		
Bert Aston Oil Co., Alford 3-A (11½-ac)	2400	3715
D. K. Caldwell Oil Co., B. Fox 4 (8.2-ac)	4000	3717
DeMontrond Oil Corp., F. L. Pinkston 8 (24.8-ac)	9000	3601
Ebony Oil Co., D. F. Deason 9 (25-ac)	6400	3695
W. H. Gant-Garvin-Wegener, J. Simmons 8 (54.46-ac)	600	3576
Gulf, E. E. Thrash 15 (83.56-ac)	9100	3716
E. E. Thrash 16 (83.56-ac)	8000	3734
Texas Canadian Oil Corp., F. J. Cox 4-A (10-ac)	4000	3675
T. O. Wright 4 (4.86-ac)	900	3671
KILGORE AREA—		
J. S. Abercrombie Co.-Harrison Oil Co., Cantrell 15 (56.18-ac)	9300	3671
Atlantic, Grif Davis 6 (20-ac)	8500	3660
Dyck Oil Co., G. H. Blackman 12 (50-ac)	1200	3680

[*Continued on next page*]

Company, Well and Location	Init. Prod. Bbls.	Depth
Empire O&R Co., H. P. Leverett 15 (87-ac)	10,000	3747
O. Lockhart 13 (75.11-ac)	8000	3548
Gen'l American Oil Co., Wm. Sexton 17 (100-ac)	200	3628
Wm. Sexton 18 (100-ac)	480	3627
Gulf, C. E. Christian 23-A (164.19-ac)	8300	3632
Humble, H. Sexton 37-B (258.6-ac)	6500	3688
Hamill & Smith, J. A. Knowles 3, blk 134	750	3554
Henry Oil Co., S. S. Laird 8 (8-ac)	6000	3562
Roger Lacy et al, J. F. Reynolds 11 (22.89-ac)	4500	3557
C. H. Lyons & Tauble, Mrs. F. Richards 3-A	120	3535
Magnolia, N. Utzman 5 (87½-ac)	40	3523
Paul Miller et al, Ben & S. S. Laird 2-B (5-ac)	5000	3577
Shell, J. B. Watson 70 (385.2-ac)	10,500	3567
Sinclair Prairie, M. Kennedy 6-D (32½-ac)	240	3618
Sun Oil-Seaboard Oil Corp., Campbell 16 (106.9-ac)	10,500	3528
Tide Water Associated, W. P. Moore 18 (135-ac)	9300	3656
Sam K. Vierson-Kingwood Oil Co., G. Muckelroy 12 (30-ac)	9800	3542
LONGVIEW AREA—		
Amerada Pet. Corp., L. R. Hearne 16 (107-ac)	5000	3523
L. R. Hearne 18 (107-ac)	5500	3501
Arkansas F. O. Co., McKinley Bros. 9-C (54.7-ac)	10,000	3613
Atlantic-J. K. Wadley, T. W. Lee 17 (111.67-ac)	9800	3728
Barnett Pet. Corp., O. J. Phillips 3 (30-ac)	1500	3707
Carl G. Dunham et al (was A. F. Waggoner), J. Williams 5-C (22-ac)	4500	3633
Fain-McGaha Oil Corp., A. Tooke 18 (100-ac)	10,400	3649
Faith Oil Corp., J. C. Barrett 21 (140-ac)	3000	3686
Galvez Oil Corp., W. W. Holland 9 (45½-ac)	3500	3675
Humble, C. C. Clemmons 10 (75.2-ac)	4500	3650
O. G. Murphy et al, Doby 11 (45-ac)	7200	3572
P. H. Pewitt et al, M. Phillips 8 (67.86-ac)	1200	3764
O. J. Phillips 5 (118-ac)	40	3715
Sun Oil, Frank Medlin 3 (56.47-ac)	300	3637
Sun-Seaboard Oil Corp., J. Rollins 16 (87-ac)	11,000	3562
J. K. Wadley et al, M. E. Florence-Humble 3 (200-ac)	600	3742
FRANKLIN COUNTY (Talco)—		
Byrd & Frost, Inc., E. L. Phillips-Gulf 8 (400-ac)	334	4250
W. B. Hinton et al, A. Owings 4 (40¾-ac)	432	4322
HENDERSON COUNTY (Cayuga)—		
Clark-Cowden Drl. Corp., C. D. Wright 4 (99¾-ac)	3500	4079
O. M. Rector et al, Q. Sutton 2 (68.55-ac)	3000	4115
Roeser-Pendleton, Inc., B. H. Wathen 4 (93-ac)	3000	4101
HOPKINS COUNTY (Sulphur Bluff)—		
W. L. Goldston-Normandie Oil Corp., Smith 7 (450-ac)	800	4520
F. D. Jones et al, A. A. Bassham-Gulf 2 (207-ac)	*	3170
TITUS COUNTY (Talco)—		
Adams & Lyles, Inc., Pat Davis 4 (41.7-ac)	300	4322
GMW Oil Co., Wilson-Howerton 1 (10-ac)	159	4306
W. B. Hinton et al, L. H. Wilson 6 (119.51-ac)	530	4288
Housh & Thompson, Inc., C. M. Carr 3 (33.82-ac)	421	4300
J. C. Morris 2 (34-ac)	514	4302
Humble, L. Blackburn 6 (120.26-ac)	300	4322
W. E. Wilson 2 (40-ac)	298	4331
John O'Neal & Rotondi, R. S. Helton 1 (20-ac)	†	2035
Tide Water Associated, C. M. Carr 2 (75.37-ac)	330	4284
FALLS COUNTY—		
J. Edward Mills et al, Sam Grucholski 1	*	5526
CASS COUNTY (Rodessa)—		
Magnolia Pet. Co., Haywood 22, P. Evans survey	600	6005
W. G. Ray Drlg. Co., Parker 1, G. Crowder survey	300	6050
Texas, Chatten 1, W. R. Meyers sur	725	5995
United Gas, V. C. Bivins 1, J. Collom	395	6005

*Failures; †Junked; ¶Million cu. ft. gas.

SOUTH TEXAS

New Nueces strike starts drilling campaign.

★ ★ ★

Duval County well making gas and spraying oil.

Corpus Christi.—Seaboard Oil Corporation's J. P. Luby 1, discovery well of the Luby field, 23 miles southwest of Corpus Christi in Nueces County, gauged 128.16 barrels of 44.9 gravity oil per day through ⅛-inch choke and showed pressures of 1225 pounds on tubing and 1625 pounds on casing. The well had drilled to 5332 feet, set 7-inch casing at 5175 feet and perforated at 5045-50 feet. Sand was logged at 5028-57 feet, likely just above the Frio. The new producer is located 466 feet out of the southeast corner of Block 4, Section 2, Luby Subdivision of the Petronilla Ranch, Palo Alto Grant.

The acreage in the general vicinity is held by several companies, including a direct offset by Stanolind Oil & Gas Company. The well was drilled on a hot geophysical prospect, and the block was rather well broken by lease holdings prior to Seaboard Oil Corporation's entrance into the deal.

Four miles southwest of the new producer, Taylor Petroleum Company was below 6385 feet in Styles 1 without finding interesting showing. Several other wildcats in Nueces County are attempting to extend present fields. J. K. Culton is drilling below surface casing in Singer 1, two miles southwest of the 6650-foot Flour Bluff field, while Mills Bennett's W. Hauermann, a mile west of the Saxet field, was coring at 4300 feet on its projected 7000-foot test. Four miles west of the field, Phillips Petroleum Company was below 6500 feet in Harney 1. W. L. Hinds et al's Rivers 1, 2½ miles northwest of Driscoll, had progressed to 5410 feet. United Production Corporation's Rivers 1-A, deep test on the west side of the Agua Dulce field, was shut down at 9002 feet, while Rivers 3-A was drilling at a shallow depth. Lockhart Brothers' Purl 1, in the same field, was near 7000 feet on its deep project.

Other deep areas of the South Texas Gulf Coast are receiving considerable activity. Contract was let by Buckingham Oil Company for 8 more 7100-foot tests in the McCampbell field, Aransas County. Two, both twins to present producers, already are active. This new sand gives promise of being a prolific producer. Whole oil sand section is about 18 feet in thickness, above which is found between 30 and 40 feet of oily gas sand. The gas wells make oil of distillate character, while those completed in the bottom sand flow about 42 gravity crude.

Phillips Petroleum Corporation extended the Midway field, San Patricio County, ¾-mile to the north when it was completed through perforations at 5340-42 feet flowing 5 barrels of oil per hour through ⅛-inch choke. The well was not fully cleaned, but pressures were around 1150 pounds on casing and 600 pounds on tubing. The test had been drilled to 5410 feet, having had gas sand at 5281 feet, top colored oil sand 5335 feet and bottom of sand at 5354 feet.

In Jim Wells County and 1 mile west of the Bentonville field, John F. Camp has abandoned J. W. Bird 1. It drilled to below 5730 feet, encountered heaving shale and attempted to blow out from a gassy section which had no volume.

Graham and associates' (was Tsesmelis & Reese) Earhart 1, 14 miles northwest of Alice in Jim Wells County, is testing after perforating in a sand section indicated at 3095-3115 feet. Well was drilled to 4005 feet, casing being set at 3170 feet.

Another Cole Sand Field discovered in Duval County

San Diego.—Another Cole sand field was proved in Duval County when Government Wells Oil Company's H. A. Lundell flowed at the rate of 11,000,000 cubic feet of gas and sprayed several barrels of oil per day through ¾-inch choke under 640 pounds working pressure. The well topped sand at 1513 feet, first two feet being hard gas cap and the next 5 feet good oil sand. Casing was set at 1513 feet.

The new producer is 2717 feet from the east line and 1186 feet from the north line of Section 140 and is about 1½ miles west of the Government Wells field.

A second well has been spudded. It will likely drill through the Cole sand, regardless of showing, and test Government Wells zone.

The new discovery is of importance in that it further lines up a new trend of Cole sand production. Gas is being produced in this horizon in the Piedra Lumbre field, several miles to the northeast and both gas and oil are being produced in the Colmena field to the southwest.

Sweden Active

Sweden district continues to be a hot spot of activity with more outpost wells being commenced in an effort to widen

production. King Drilling Company's Parr 1, several miles southeast of the North Sweden field was coring for the 4750-foot Jackson sand production, while two other wildcats had been spudded. Navarro Oil Company is drilling more than a mile to the southwest on the Rossi land, while Standard Oil Company of Kansas' well one mile to the south of the North field is on the Parr fee.

Hiawatha Oil & Gas Company is spudding two outpost wells in the original Sweden field. M. M. Miller 2, two locations southwest of production, will test both 5100 and 5900-foot horizons, as will Southland Life Insurance Company 1, 2/3-mile north of the field.

Thomas-Lockhart's Lillian Parr 3-A, west of the discovery well in the Thomas-Lockhart field, was coring for the 4600-foot sand, having tested salt water in the 3900-foot zone. It cored sand 3959-64 feet, 1-foot shale break, then sand to 3971 feet. Drill stem test 3938-71 feet was made and in 45 miutes, 2350 feet of salt water was recovered.

Edwin M. Jones drilled to 2385 feet in Harry Ezzell 7, west offset and second test in the Ezzell Ranch field, McMullen County. Sand was cored at 1501-8 feet, casing set to 1550 feet and the well is being completed through perforations. Several miles to the north, Ezzell 1, which blew out recently and started to crater, has choked itself and is now dead. Two relief wells had been started, but they now are unnecessary.

Killam field, Webb County, apparently was defined to the south when O. W. Killam's F. Perez 1, one mile south of production, cored the Mirando sand and tested salt water.

Brooks County core tests give promise of production

Mission.—Standard Oil Company of Texas continues to find sands showing both oil and gas in its deep core wells in southwestern Brooks County. These wells have found no less than 10 sands each which give promise of making producers somewhere on the structure if not in the present wells.

Mestina Oil & Gas Company 5, second deep well for the Alta Mesa field, was progressing below 4520 feet. Its last important show was at 4229-37 feet, where it showed considerable oil and oily mud. Definite depth of the project has not been started, but it is possible that it will be carried to 8000 feet. This field is at this time producing from three oil sands, namely 2450 feet, 3000 feet and 3500 feet.

Six miles north of the field, Mestina Oil & Gas Company 1, on lease 2, was going ahead at 5475 feet. It showed 290 feet of oil, 260 feet of oil and gas cut mud and 30 feet of salt water at 5151-68 feet. This well also has had a number of sands, carrying both oil and gas. A string of 10¾-inch casing was set at 3968 feet indicating that the well is to be unusually deep.

Brooks County received one failure, being Gifford Oil Company's William Singer 1, Section 30, six miles southeast of Alta Verde, which was abandoned at 4210 feet.

Cameron County's wildcatting for deep production had two active wells. Stapper Petroleum Corporation's Port Isabel 1, which recently stuck drill stem around 7779 feet after drilling heaving shale, is still fishing. Ruez-Morton, Inc.'s United 1 is below 4500 feet and Saxet Production Corporation's Port Isabel is reported to have abandoned location at least temporarily.

Two Hidalgo Deep Tests

Two 8000-foot wells are being drilled in the LaBlanca field, Hidalgo County. Atlantic Refining Company has spudded Lewis 1, south offset to the McDougal producer, while Davenport and Swallow's Swallow 1, southeast offset to the same well, is progressing below 4650 feet.

South Ricaby, Starr County, producing from the Frio, is one of most prolific producing areas thus far discovered in the Rio Grande Valley. G. E. Dodd, Trustee's Ben D. Wood 3, 600 feet south of production, flowed 35 barrels per hour through 3/16-inch choke with tubing pressure of 250 pounds and casing pressure of 550 pounds, sand being logged at 1736-44 feet. Sun Oil Company is completing a west offset to the discovery well and Dodd has commenced a north offset to the first producer.

Caldwell County well flows 4800 barrels

San Antonio.—Deep wells along the lower Balcones and large producers in the upper zone divided interest during the past week. Both are of importance on outlining the reserves of this Cretaceous district.

Wilcox Oil & Gas Company's Light Ranch 1, southeastern Dimmitt County, was drilling below 7045 feet, not yet in the Austin chalk. It is the deepest well thus far drilled in this county and is the first of a series to be drilled by this and other concerns to test Austin chalk and below.

In Frio County, Amerada Petroleum Corporation's Halff and Oppenheimer 8, Pearsall, was tied up with a fishing job at 10,341 feet, having twisted off drill pipe about six joints from top. It caught onto the pipe, but pulling had not been successful thus far. Should the pipe be recovered, a string of 7-inch casing will be landed on bottom. Two other active wells are below 6000 feet by this company.

In Wilson County, Maryland Oil Corporation and associates had progressed to near the Edwards limestone below 5450 feet, having had showings of both oil and gas in the Austin chalk and Buda limestone. This well is near Pandora.

Wilson County was receiving a new shallow pool of some sort with R. C. Stanley's Hierholzer 2, 12 miles southwest of Floresville, being tested. It cored a sand in the Mount Selman at 1025-30 feet and set casing.

The largest producer ever completed in the Branyon district, Caldwell County, flowed at the rate of 4800 barrels after acidizing with 4000 gallons. The well is Colby Oil & Gas Company's W. W. McCrory 3, which topped Austin chalk at 2020 feet and drilled in 110 feet.

Dan Auld's Rigsby 1, northeast of Rock Springs in Edwards County, has been abandoned at 3952 feet. The well showed a little 26 gravity sweet oil in Ellenberger limestone at 3920-22 feet, but went into water at 3943-50 feet. It is one of the best showings in the Ordovician ever found in the lower Hill Country.

SOUTH TEXAS

Completions

Company, Well and Location	Init. Prod. Bbls	Depth
CORPUS CHRISTI DISTRICT		
ARANSAS COUNTY—		
Atlantic Ref. Co., Mrs. Elizabeth Murray 1-B, lots 15 and 16, blk 12 McCampbell Ranch subd. (McCampbell) perf 7076-80 ft....¶10 &	200	7090
Eleanor Oil Co., McCampbell Ranch 1-A, sec 58 McCampbell Ranch subd (McCampbell) perf 7113½-17 ft	850	7121
BEE COUNTY—		
Butler & Turner, J. R. Scott 1, 1040 ft nl and 330 ft wl sec 7 Howeth & Swiger subd, Jose Maria Uranga Gr.	*	5004
BROOKS COUNTY—		
Gifford Oil Co., Wm. Singer 1, 3660 ft sl, 300 ft wl sur 630	*	4210
CALHOUN COUNTY—		
Humble & Plymouth, E. H. Welder 6, J. M. Rios sur (Heyser)	500	5463
P. H. Welder 15-A, J. M. Rios sur (Heyser)	500	5486
Portilla Drlg. Co., P. H. Welder 7-C, Agaton Sisneros sur (Heyser)	500	5495
JIM WELLS COUNTY—		
C. C. Glasscock, J. C. Ritter 2, lot 36, sec 76, Haldeman subd (Premont)	70	2368
KARNES COUNTY—		
DeGraffe & Reele, Cochran 1, se corner of McConnell League	*	1307
Magnolia, Guy Porter 15, B&B sur No. 23 (N. Pettus)	75	3705
LIVE OAK COUNTY—		
R. A. David, John & J. P. Marbach 1, 2250 ft swl and 1175 ft nwl of 428.98-ac farm in Stephen Hays sur	*	919
R. H. Feltner et al, Sanger Ranch 2, 330 ft w'ly wl 990 ft, s'ly nl GC & SF Ry. sur 385, Ab 637	*	3259
Loma Oil Co., C. L. Terrell 1, 220 ft nwl, 165 ft of tr J. Houlihan sur	*	1192
NUECES COUNTY—		
Donico Prod. Co., V. M. Donigan 10, sec 7 Kinney sur, range 6 (Saxet)	450	4535
Genro Dr. Co., Rose 1, lot 9, blk 11, Villa Gardens subd, Villareal gr (Saxet Heights)	200	4094
W. H. Harrison Drilling Co., Simms 1, Villareal grant (Saxet Heights)	*	4097
Hiawatha Oil & Gas Co., F. J. Smith 3-B, blk 35, Sheppard Farm Lots (Saxet)	450	5831
Kepley Prod. Co., V. M. Donnigan 4, sec 7, Range 6 (Saxet)	400	4591
Pan American Prod. Co., J. Sagarino 6-B, CEIP&M sur No. 500 (Saxet)	480	6751
H. M. Reed et al, Catherine Quinn 2, Villareal gr (Saxet Heights)	375	4115
Richardson Pet. Co., Cain & Sechrist 18, blk 23, Russell Farm Lots (Saxet)	750	4897
Seaboard Oil Corp., James P. Luby 1, 467 ft sl and el blk 4, sec 2, Luby subd Petronilla Ranch, Palo Alto gr	425	5332
Texon Drilling Co., Anton Ocker 7, J. Ward sur No. 402 (Saxet)	375	4580
Antone Kocurek 7, J. R. Ward sur No. 316 (Saxet)	525	4444
REFUGIO COUNTY—		
Hewitt & Dougherty, M. F. Lambert 48, blk 44, J. M. Swisher sur No. 6 (Tomoconner)	1250	5895
Quintana Pet. Corp., Mary C. Bauer 3, M. J. Ximinies sur (Tomoconner)	2500	5918
Tom O'Connor 49-A, J. M. Swisher sur (Tomoconnor)	1650	5966
United Prod. Corp., N. J. Ryals 9, 77-ac tr in Refugio Town Grant (Refugio)	675	4921
SAN PATRICIO COUNTY—		
Conroe Drilling Co., F. L. Foley 1, 330 ft nl and el of s½ sw¼ sec 42 Pauls subd, Coleman Fulton Pasture Lands, C. F. Delmas sur	*	6505
VICTORIA COUNTY—		
Commonwealth Oil & Gas Co., W. H. Bennett 4, J. E. Galban sur (Heyser), owdd, former td 5491 ft	425	5747
Salmount Oil Corp., O. M. Lala 1, Wm. Rupley sur (Placedo)	60	4806

[*Continued on Page 100*]

TEXAS GULF COAST

Deep Matagorda County wildcat opens oil field.

* * *

New gas-distillate area three miles west of Amelia.

* * *

Extension gives Hardin higher rank as reserve.

Houston.—Discovery of an oil field in Matagorda County and a gas and distillate field in Jefferson County and extensions of several new fields held the interest of operators in the Texas Gulf Coast last week.

Three miles southwest of Buckeye field, Matagorda County, United North & South Development Company's Stoddard 1, Cotton Survey, opened an oil field June 14 when it came in flowing between 50 and 75 barrels of 37.7 gravity, corrected, pipe line oil daily through a 3/16-inch choke from Frio formation. Tubing and casing pressures were 3275 pounds. The well was completed at 9978 feet, opening the second deepest producing district in the Gulf Coast. Old Ocean field, Brazoria County, being the deepest.

Trying to Increase Flow

At the end of the week the company was installing bottom hole chokes to increase the flow. It was estimated Stoddard 1 was making 2,000,000 cubic feet of gas daily.

United North & South Development Company's Stoddard 1 has been an interesting wildcat for several months. It has attempted to blow out a number of times; over 4000 sacks of special drilling mud has been used to keep the well under control. Seven-inch casing was cemented at 9895 feet, and after making a producing test around this level the wildcat failed to show. The hole was cored to 9978 feet and screen and liner set. After washing the well came in flowing distillate and gas and later started making oil.

Another interesting feature of the well is that it is producing from about 2800 feet in the Frio formation and is believed to be the first well to be completed that deep in the Frio, adding to the possibilities of deeper production at Old Ocean, Brazoria County, Van Vleck, Matagorda County, and other fields in this area producing from the Frio.

Gas and Distillate Strike

A new gas and distillate field was opened three miles southwest of Amelia field, Jefferson County, last week when Magnolia Petroleum Company brought in Phelan 1 as a gas and distillate producer at 8460 feet. The well was allowed to flow for several hours and then was shut in. Pheland 1 was drilled to 8602 feet and plugged back. Seven-inch casing was set at 8354 feet. Cement plugs were drilled to 8460 feet. The well was washed for 3½ hours and came in flowing through a quarter-inch choke, with a tubing pressure of 2500 pounds and a casing pressure of 2800 pounds. The shut in pressure was 3100 pounds on the tubing and 3000 pounds on the casing.

2½-Mile Extension Looms

Hardin field, Liberty County, may be extended 2½ miles northeast by Jack Frazier's Hanchey 1, H. B. Johnson Survey, which is preparing to set seven-inch at 7612 feet for a production test. Sand showing oil from 7600 to 7612 feet showed eight ohms and 55 milivolts. A drill stem test from 7488 to 7612 feet showed four thribbles of mud and two thribbles of mud cut with oil in 10 minutes through quarter-inch chokes. Pressures were 400 pounds at top and 3000 pounds at bottom. If it is a commercial producer it will be the second to be completed in the field. There have been several wells drilled at Hardin, all dry except the discovery well. Jack Frazier discovered the field July 23, 1935.

May Drill Twin Wells at Hastings

Completion in a shallow sand of Showers & Moncrief's Hughey 2, northwest side of Hastings field, Brazoria County, may lead to twin drilling in this area. The two operators received a permit to drill the test on the same 10-acre tract with Hughey 1. It was claimed that there are two different producing sands in this area. Hughey 2 was completed at 5760 feet after sand was logged at 5557 feet. Seven-inch casing was set at 5552 feet and the well came in flowing 692 barrels daily through a quarter-inch choke, with a tubing pressure of 825 pounds and a casing pressure of 840 pounds. The first well in this area was completed around 6080 feet.

The first side of Hastings field definitely defined is the northwest side. Stanolind Oil & Gas Company abandoned Turrentine 1, H. & T. B. Section 29. The well failed to pick up any of the oil sands found in the main part of the field. There is an average of 800 feet of oil sand at Hastings.

Old Ocean's Best

Harrison & Abercrombie completed another deep producer at Old Ocean field, Brazoria County last week. Bernard 1-A, a workover, was completed after perforating casing from 9827 to 9835 feet with 21 shots. The well made about 25 barrels per hour through a quarter-inch choke, with a tubing pressure of 2700 pounds. It is the best well yet completed in the field and was the discovery well. Originally completed around 8500 feet, it was killed and drilled to 10,053 feet and then plugged back. The same operator's Bernard 4 was drilling at 10,348 feet in oil sand and has logged broken formations showing oil from 9800 feet on down. Old Ocean is the deepest producing field in the Texas Gulf Coast.

Stanolind Oil & Gas Company has entered the Sandy Point Field, making location for J. A. Fite 1 approximately a quarter mile southeast of the discovery well.

Two Magnet Wells Disappointing

Atlantic Refining Company and Texas Crusader Oil Company's wells at Magnet proved disappointing last week when the former company's well came in making gas and distillate and the latter company's well would not flow because of the lack of gas. Atlantic Refining Company's Cockburn Fee 1 was perforated with 19 shots from 5533 to 5537 feet and washed in through a quarter-inch choke showing a tubing and casing pressure of 2050 pounds. The well was making a small amount of distillate. It probably will be killed and cored a little deeper. Texas Crusader Oil Company's Cockburn Fee 1 set seven-inch casing at 5531 feet and after setting screen and liner the hole was swabbed. The test showed a little oil. Rocked with gas from Atlantic Refining Company's well, it still failed to show oil in commercial quantities. It is believed the screen is clogged.

In Colorado County, Humble Oil & Refining Company's Relaw Land Company 1, L. Duggat Survey, was abandoned last week at 5725 feet after coring salt water sands at 5424 to 5430 feet.

Gas Well at Long Point

In Ft. Bend County, Earl Trone's Trone 2, H. & T. C. Survey, Section 67, Long Point area, 170 feet south of Trone 1, was shut in as a gas well at the end of the week. Trone 2 was drilled to 909 feet and logged top of the cap rock. Gas sand was encountered from 889 to 897 feet. A drill stem test of sands showing oil from 903 to 909 feet showed 450 pounds pressure in eight minutes through quarter-inch chokes. Twenty feet of screen was set, and when the well was washed it came in making dry gas and was shut in.

On the Needville prospect, Ft. Bend County, Marlen Oil Company's Jurea 1, H. & T. C. Section 26, was drilling in shale at 5209 feet last week after coring salt water at 5145 feet.

Approximately 1900 feet east of production at Silsbee field, Hardin County, Republic Production Company's Brooks 16, J. A. Williams Survey, was preparing to core ahead after running an electrical logging device at 6915 feet. The crew has logged broken formations showing oil 6885 to the bottom of the hole. A drill stem test was attempted from 6885 to 6900 feet. The same operator's Brooks 13, G. W. Brooks Survey, tested water at 6980 feet last week and will set casing in the upper sand around 6845 feet for a production test. A drill stem test from

6832 to 6845 feet showed 170 feet of pipe line oil and a 70-pound pressure through quarter-inch chokes.

To Test at Spurger

One location west of the discovery well at Spurger (Joe's Lake) Republic Production Company was reaming to make another drill stem test. A drill stem test of sands at 7580 to 7632 feet showed 175 pounds pressure and seven joints of oily mud. The company will make another drill stem test of formation cored at 7632 to 7640 feet. This well will probably be the second oil well in the new field.

West of production at Segno, La Quinta Oil Company's Wing 5, I. & G. N. Section 15, was completed at 5194 feet flowing 528 barrels of pipe line oil daily through a quarter-inch choke, with a tubing pressure of 1000 pounds and a casing pressure of 1800 pounds.

One location east of Humble Oil & Refining Company's Kirby Lumber Company 3-B, southeast of Segno field, its Kirby B-4, M. Victor Survey, was waiting on cement to set. Seven-inch casing was cemented at 5320 feet after the hole had been drilled to 5335 feet in sand showing oil. Top of the oil sand was logged at 5327 feet.

Approximately 4000 feet south of production at Clinton, Harris County, Stanolind Oil & Gas Company was making a last test on Oates 1. Several tests failed to show anything, the last being at 8045 feet. The hole was plugged back and the crew will make a test of sands at 6600 to 6610 feet. This is a new sand.

North of production at Turtle Bay, Chambers County, Stanolind Oil & Gas Company's Davis 1, was at completion stage. The well was down to 6625 feet in sand showing oil. Top of the sand was found at 6620 feet and the first broken formation showing oil was logged at 6613 feet. Seven-inch casing was set at 6601 feet. A production test will be made next week.

TEXAS GULF COAST
Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
AMELIA—		
Humble, Crook 3	563	6777
Dishman E-1	600	6775
Phelan 5	648	6777
Pinchback B-2	580	6777
Tyrell Combest B-1	513	6779
ANAHUAC—		
Humble, Drought 2	624	7117
ESPERSON—		
General Crude, Moores Bluff 29	190	2980
HASTINGS—		
Humble, Baker 2	600	6080
Showers & Moncrief, Hughey 2	692	5760
Stanolind, Hutcheson 3	696	6080
Law 3	624	6053
Massey 1	630	6080
R. E. Turrentine 1	*	6220
HAWKINSVILLE—		
Sun, Craig 2	*	5965
LOUISE—		
CE Oil Co., Fain 1	*	5174
MANVEL—		
McBride & Smith, Gamble 1	*	4067
McBride, Jones and Jones, Lambert 1	490	4067
Texas Co., Rash 7	325	4133
MARKHAM—		
Turman Oil Co., Hudson 2	239	3670
NOME—		
Shell, Texas Public Service 3	510	6050
Sun, Long-Mouboules 2	¶2	6050
Paggi 8	¶2	6051
PIERCE JUNCTION—		
A. P. Prod. Co., Whitehead 9	*	4984
SEGNO—		
La Quinta Oil Co., Wing 5	528	5194
SOUTH HOUSTON—		
Smith & McDaniels, Phillips 2	384	4014
THOMPSON—		
H. M. Naylor, Gehr 11	140	4398
TOMBALL—		
Amerada-Stanolind, Baker 2	355	5583
Humble, Stehley 1	528	5566
Schultz C-2	¶3	5583
WITHERS—		
Texas Co., Pierce Estate C-30	508	5553
COLORADO COUNTY—		
Humble, Relaw Land Co. 1, Eagle Lake prospect, L. Duggat sur	*	5725

*Failures; †Junked; ¶Million cu. ft. gas.

Austin.—Sun Oil Company has asked the Texas Railroad Commission to install a temporary spacing rule in the Ricaby field in Starr County and call a hearing on permanent rules for about June 29.

There are three wells in the field, drilled 300 feet apart and 150 feet from lease lines. Sun Oil Company wants a 330-660 rule.

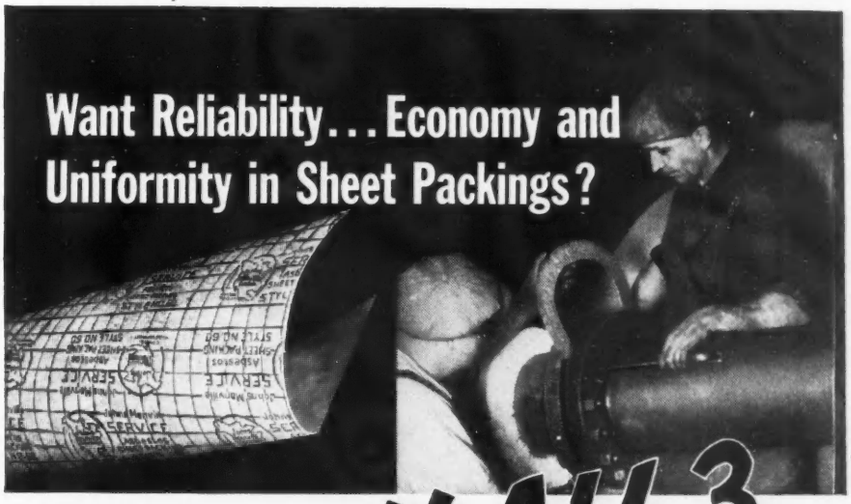
Rodessa Bottom Hole survey shows drop

Shreveport.—Sixty wells in the Texas portion of the Rodessa field showed a decline in bottom hole pressure when tests were made as of June 1 by engineers of the Texas Railroad Commission, but released only last week.

The drop ranged from .08 pounds daily to as high as 10.29 pounds per day, with the average placed at 2.79 pounds.

Wells with the greatest reduction were in the thickly drilled section of the field near the gas-oil contact and have been producing for some time.

The tests were made with a .32 pound per foot density fluid with temperatures at bottom of hole 190 degrees.



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[Continued from Page 97]

SAN ANTONIO DISTRICT

Company, Well and Location	Init. Prod. Bbls.	Depth
BASTROP COUNTY—		
Schobe-Feldott Oil Co., B. L. Duran 1, L. Flint sur (N. Dale)	200	2125
Sure Oil Co., C. Y. Powell 1, sw along sel J. G. Welchmeyer sur, 950 ft thence nw 482 ft at right angles or 150 ft sel, 950 ft nel of 301-ac tr	*	2306
CALDWELL COUNTY—		
Fred J. Adams, W. M. Ellison 2-B, Dillard Cooper sur (Branyon)	250	2170
Colby Oil & Gas Co., W. W. McCrory 3, John A. Neill sur (Branyon)	4800	2130
Lincoln Pet. Co., T. H. Brown 4, D. Cooper sur (Branyon)	5	2304
Ogden & Reed Oil Co., Pete Moore 1, W. C. Swearingen sur (Dale)	*	2230
Lee Ross, Ed Starcke 1, Cornelius Crenshaw sur (Larremore)	25	1258
EDWARDS COUNTY—		
Dan Auld, Mrs. Mamie Rigsby 1, 330 ft nl, 660 ft wl of 5120-ac tr sec 16, blk ok in GC&SF sur	*	3952
MEDINA COUNTY—		
Charles H. Wagener, Medina Irr. Farms 5-A, M. W. Hewitt sur (Chicon Lake)	1	215
LAREDO DISTRICT		
DUVAL COUNTY—		
Continental, Clara Driscoll Sevier 15-A, J. P. Nelson sur (Driscoll)	285	3341
Cox & Hamon, Yoakam-Green 2, sec 118 BS&F sur (Hoffman)	100	2703
Gov't Wells Oil Co., Inc., H. A. Lundell 1, 2717 ft el, 1186 ft nl sec 140	¶11	1520
Humble, Duval County Ranch Company 2-D, sec 585 (Colmena)	*	1501
Dowdy-Fee 18, BS&F sur, sec 272, (Seven Sisters)	320	2572
Magnolia, T. Benavides 7, blk 32, O'Hern Seacord subd, El Mesquite gr (Cole-O'Hern)	300	2889
DCRC 1, sur GB&CNG (Colmena)	¶5	1553
DCRC 4, sec 203 Poitevent sur (Piedre Lumbre)	*	2200
Reynosa Oil Co., F. G. Wilson 1, 330 ft el, 990 ft sl of s½ of se¼ of blk 9, Sweden subd, Santos Flores gr	750	4775
Shell, Bishop Cattle Co. 10, 248-ac lse, sur 59 (Loma Novia)	75	2582
Geo. V. Viteri et al, Emilio E. Cadena 1, 466 ft nl and el s½ e-80-ac blk 6, G. Stewart O&G sub, Cadena Lands, J. M. Hinojosa gr	*	6636
Wellington Oil Co., J. F. Welder Heirs 3-A, sur 103, (Loma Vista)	*	3102
STARR COUNTY—		
G. E. Dodd, Trustee, Ben D. Wood 3, por 84 (S. Ricaby)	900	1744
St. Marys Oil & Gas Co., Mrs. A. K. Bass 2-E, sh 8, por 76 (Los Olmos)	¶¼	360
WEBB COUNTY—		
Bolling & Coffey, A. Villeareal 1, 500 ft wl, 150 ft sl of blk 17, sur 768	*	2550
Highland Oil Co., A. M. Bruni 6-B, sec 7, Mariano Arispe grant (Cole-Bruni)	200	3440
Magnolia, Brennen-Benavides 43, M. E. Hale subd, blk 11, Mariano Arispe gr (Cole-Bruni)	625	3439
Superior, W. C. Billings 25, sec 109, (Lopez)	175	2334
Valley Osage Oil Co., W. C. Billings 4, CCSD&RGNG sur (Lopez)	98	2304
ZAPATA COUNTY—		
Bob and Richey, J. M. Martinez 1-A, blk 24, W. A. Duke subd, Charco Redondo gr (Charco Redondo)	3	180
T. M. G. Martinez 3-A, blk 24, Duke subd (Charco Redondo)	2	186
T. M. G. Martinez 4-A, blk 24, Duke subd (Charco Redondo)	2	188
Earl Callaway, Belen Bustamante 12, sh 8, Fansler Partition, Comitas gr (Escobas)	35	1197
Belen Bustamante 12-A, sh 8, Fansler Partition Comitas gr (Escobas)	*	1302
Nordan & Morris, C. Bustamante 22, sh 33, Fansler Partition, Comitas gr (Escobas)	30	1241
C. Bustamante 23, sh 33, Fansler Partition, Comitas grant (Escobas)	30	1232
E. C. Reeves, M. Bustamante 2-A, sh 9, Fansler Partition, Comitas gr (Escobas)	7	1166

*Failures; †Junked; ¶Million cu. ft. gas.

SOUTH LOUISIANA

New gas and distillate field indicated at Fenton.

* * *

Lake Mongouloi dome wildcat testing oil sand.

* * *

Long Lake potential discovery scheduled June 22.

Lake Charles. — Louisiana Crusader Oil Company's Langley 1, Fenton prospect, Section 36-7s-5w, Jefferson Davis Parish, indicates it may open a new gas and distillate field. The wildcat cored sand and shale from 8955 to 8985 feet and also logged a gas sand at 8862 feet. After a 20-foot core is taken from 8985 to 9005 feet the casing will be set and perforated up the hole at different levels where the gas sands were encountered. The crew has had considerable trouble in keeping Langley 1 under control; 13.4-pound mud has been pumped into the hole to keep it from blowing out.

The wildcat was spudded early in April and drilled to 7412 feet and encountered gas and salt water sand. An electrical logging device showed six ohms and 120 milivolts from 7358 to 7367 feet. On a drill stem test from 7359 to 7364 feet (the testing tool slipped to 7355 feet) the wildcat showed eight joints of mud, no pressure, and a fair blow through quarter-inch chokes.

Approximately a half mile north of the discovery well at South Jennings, Stanolind Oil & Gas Company's Calcasieu National Bank 1, Section 10-10s-3w, Jefferson Davis Parish, was drilling in shale at 9085 feet after coring salt water sands at 8710 feet. The test is running around 75 feet lower than the discovery well on structure.

Texaco Wildcat Gets Show

At Lake Mongouloi salt dome, St. Martin Parish, The Texas Company's State 3, Section 14-10s-9e, is reported testing sands showing oil from 7798 to 7804 feet. This wildcat was drilled to 8208 feet in salt after logging the top of the formation at 8175 feet. The hole was plugged back to 7600 feet and sidetracked at 7794 feet. State 3 is the second well on the prospect to encounter salt and is the first to encounter a good oil sand. Much interest is being shown in the wildcat as it may discover a new field in the South Louisiana District.

What appears to be another disappointing well for the Section 28 salt dome, St. Martin Parish, is Joe E. Lilly et al's R. Martin 1, Section 32-10s-7e. The southwest flank test topped salt at 4293 feet and stayed in the formation to 4450 feet. An electrical logging device showed three ohms from 4202 to 4207 feet. The company may abandon the well.

On Horseshoe Bayou, The Texas Company's Horseshoe Bayou 1, Section 40-17s-9e, St. Mary Parish, was trying to get back into the old hole which blew out, caught fire, and burned for one hour at 12,261 feet. A heavy drilling barge is over the old hole and an attempt will be made to get back on bottom and drill deeper.

East of Horseshoe Bayou at Bateman Lake, The Texas Company's State 1, Morgan City prospect, Section 21-16s-12e, was drilling below 10,480 feet at the end of the week and will be carried down to an undetermined depth.

To Open Field Next Week

Fohs Oil Company and Pilgrim Exploration Company's State 1, Long Lake prospect, Section 65-17s-19e, Lafourche Parish, will be completed June 22. The wildcat indicated it would open a new producing district in this area several weeks ago, but completion of the test was delayed. Seven-inch casing was set at 9389 feet, but had to be recemented. The second cement job, tested the past week, was satisfactory.

Pan American Production Company had two completions at Valentine last week. Harange 5 made 641 barrels of 33 gravity oil daily through a quarter-inch choke, with a tubing pressure of 1110 pounds and a casing pressure of 1225 pounds, from 5515 feet. Harange 6 made 577 barrels daily through a quarter-inch choke, with a tubing and casing pressure of 775 pounds, from 5410 feet.

On the Black Prince Island prospect, St. Charles Parish, Amerada Petroleum Corporation and Louisiana Land & Exploration Company's State Bayou Des Allemands 1, wildcat in Section 13-15s-20e, was waiting on cement to set at 7124 feet after setting 9⅝-inch casing. Sands showing oil from 6820 to 6878 feet will be tested through perforations.

Sidetrack Lafitte Outpost

After drilling to 9902 feet and having the casing part, The Texas Company's State Bayou Norman 1, approximately ¾-mile east of production at Lafitte field, Section 28-17s-24e, Jefferson Parish, was plugged back to 3684 feet and sidetracked at 3749 feet. Sand showing oil was logged in State Bayou Norman 1 from 9586 to 9616 feet and from 9870 to 9871 feet. The company's Rigolets 7, Section 29-17s-24e, was drilling ahead in shale below 10,339 feet, below the

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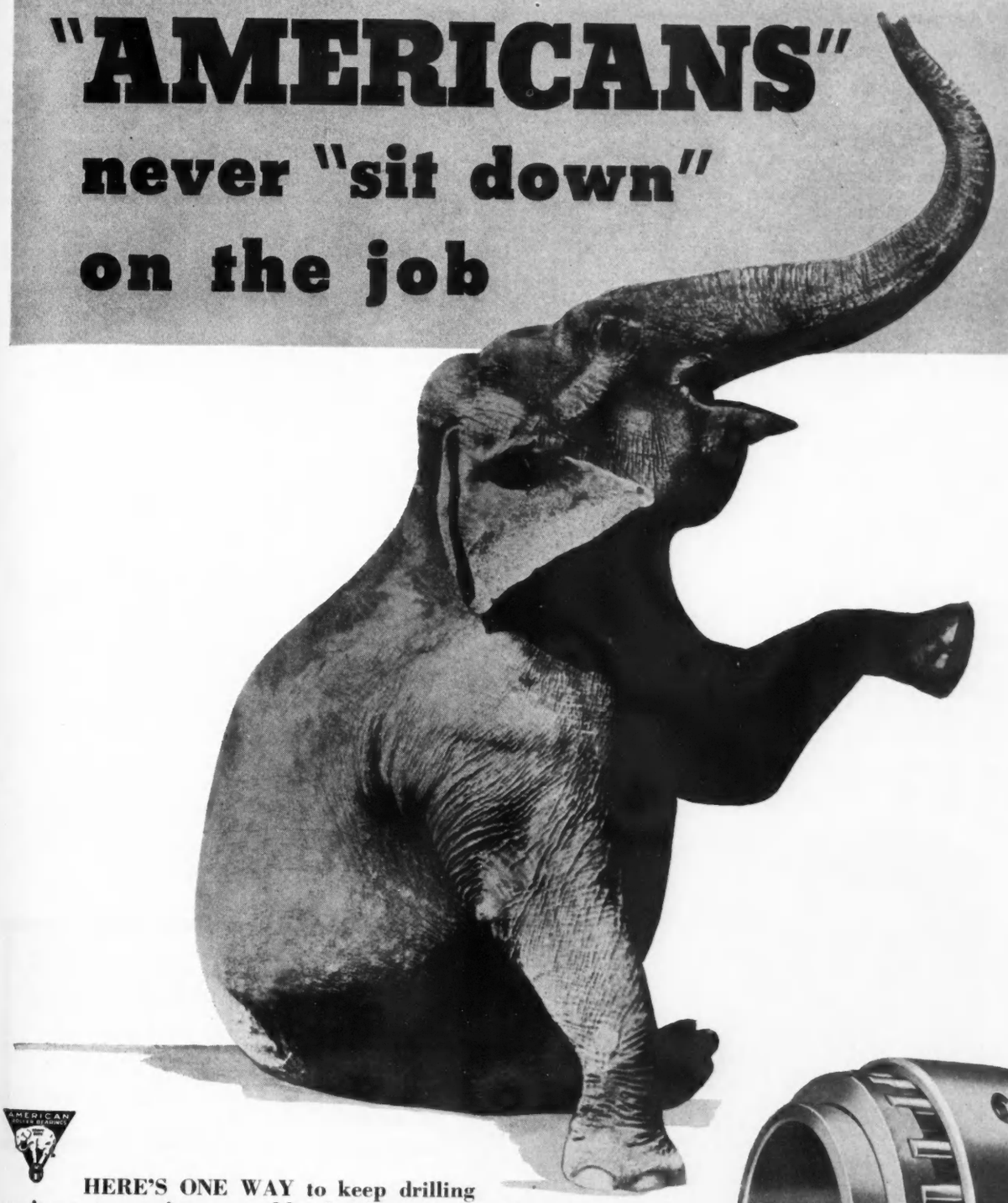

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regular producing sand at Lafitte. It probably will be carried down to 11,000 feet.

At Bay St. Elaine in Terrebonne Parish, E. J. Le Blanc's C. Wurzlow 1, Section 17-22s-18e, was preparing to set eight-inch casing at 1180 feet after logging a soft sand rumored as showing oil. If this is so it will be a new sand for Bay St. Elaine field.

Northeast of Hope Villa and in Livingston Parish, Neville & Grubbs made location for Evans 1, 660 feet south and 260 feet west of the northeast corner of Section 47-7s-3e.

Above the Conroe trend in Vernon Parish, Geo. J. Greer made location for Commercial Bank 1 in the center of the SE¼ of Section 9-1s-8w, southeast of Leesville.

On the Vermilion Bay prospect in Iberia Parish, The Texas Company is reported making a location for State 2-B in 16s-5e.

Union Sulphur Company's J. O. Hebert 1, the first oil well for Big Lake field, Cameron Parish, was again flowing water and oil at the end of the week after it had been tested the second time. Hebert 1 was perforated the second time at 8318 to 8321 feet with 27 holes. It came in making 500 barrels of fluid daily, four percent water, through a quarter-inch choke with a tubing pressure of 800 pounds. At the close of the week the yield was six percent water and the rest 38.9 gravity oil.

Three wells are at completion stage on the west and southwest side of Jennings field, Acadia Parish. A. C. Glassel's R. McFarlain 1, Section 41-9s-2w, was down to 6781 feet in sand showing oil after logging the top of the sand at 6758 feet. The same operator's Trushel 2, Section 42-9s-2w, was waiting on cement to set at 7156 feet after setting seven-inch casing was cemented at 7034 feet. Top of the sand was found at 7041 feet. Superior Oil Producing Company's Jennings Heywood 3 was making up tubing for a production test at 6754 feet. Seven-inch casing was set at 6529 feet and sand was logged at 6530 feet.

Superior Oil Producing Company has entered Vinton field, Calcasieu Parish, making location for Grey 1, 2972 feet south and 2707 feet east of the northwest corner of Section 4-11s-12w.

LOUISIANA GULF COAST

Completions

Company, Well and Location	Init. Prod. Bbls	Depth
CAILLOU ISLAND—		
Texas Co., State Caillou Island 48	800	3726
ENGLISH BAYOU—		
Fohs Oil Co., Airheart 3.....	*	lcn.
GARDEN ISLAND BAY—		
Texas Co., State 21	256	4998
LEEVILLE—		
Texas Co., L. L. E. Leeville 65...	514	4084
STARKS—		
J. R. Turnbull, Industrial Lbr. Co. 1	*	6435
VALENTINE—		
Pan American Prod. Co., Harange 5	641	5515
Harange 6	577	5410
EAST FELICIANA PARISH—		
Cavalier Oil Co., Bickman 1, Port Hudson area, 88-4s-1w	*	4500

*Failures; †Junked; ¶Million cu. ft. gas.

Rodessa gasoline plant capacity to be enlarged

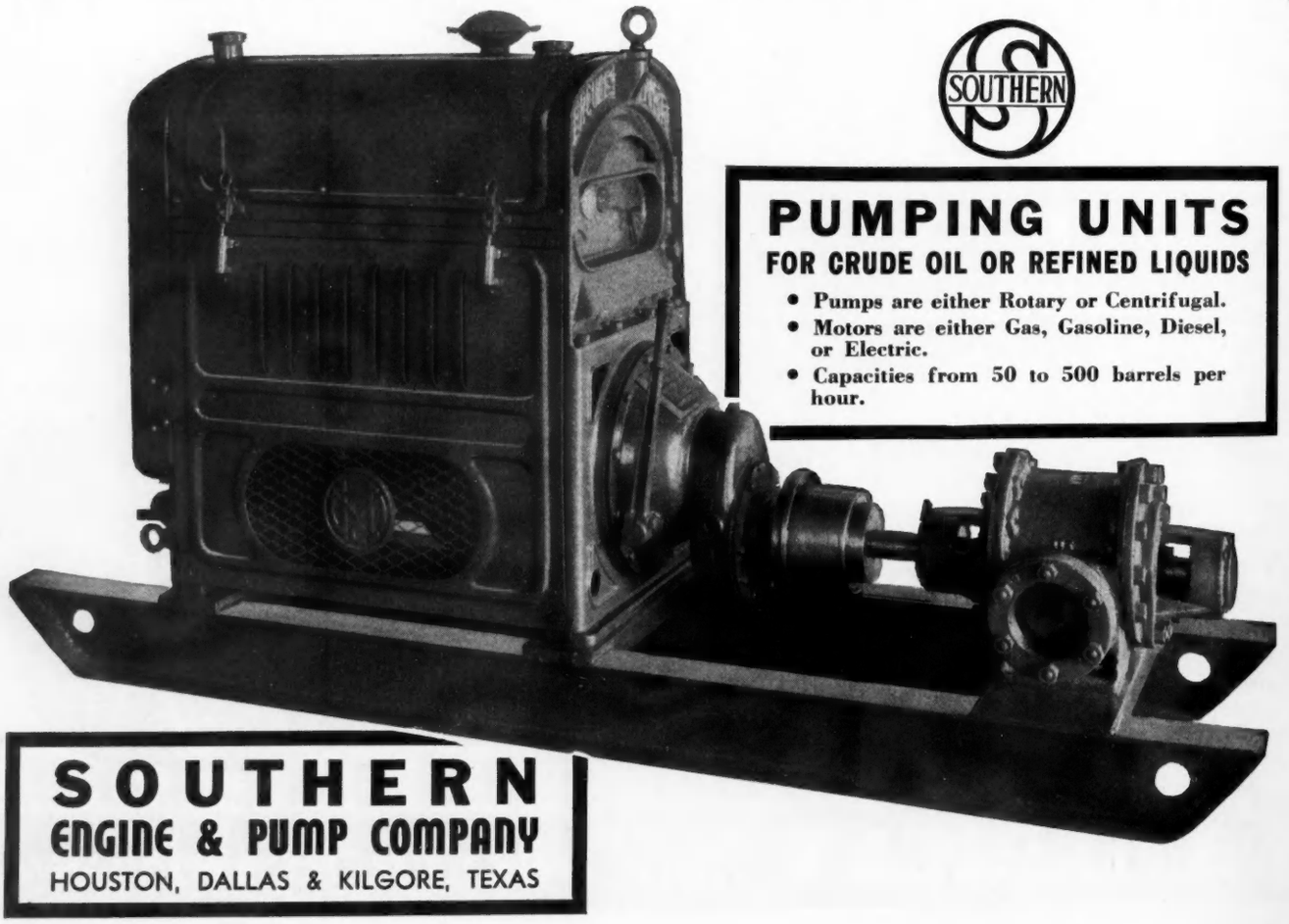
Shreveport. — The 25 million-foot daily capacity gasoline absorption plant in the Rodessa field of the Rodessa Gasoline Company, Incorporated, has been purchased by Great National Oil Corporation, just organized by J. T. Means, Jr. and J. D. Blanton of Shreveport.

The new owners are reported planning to immediately enlarge the capacity of the plant as well as modernize it. Plans are also being made for the erection of a distillation plant to be operated in conjunction with the absorption unit.

Contract deep test in Madison County, Mississippi

Jackson, Miss.—Contract for a deep exploratory test in Madison County has been awarded by Sun Oil Company and B. B. Jones on a block of about 15,000 acres. Location is on the Will J. Wilson 959-acre tract, C SE SE 1-8n-2w. Contract calls for a 5000-foot test, but owners are preparing to drill to 8000 feet, if necessary to explore all potential producing horizons.

Sun Oil Company and Wanette Oil Company's Mrs. K. Talley 3, 33-4n-15w, Lamar County, was drilling in Wilcox sand series at 3476 feet. Top of this zone was logged between 2500 feet and 2600 feet, with an elevation of 388 feet, and no oil or gas showings have been recorded. Location is on the south flank of the Scanlan dome, where the partnership has drilled three previous tests.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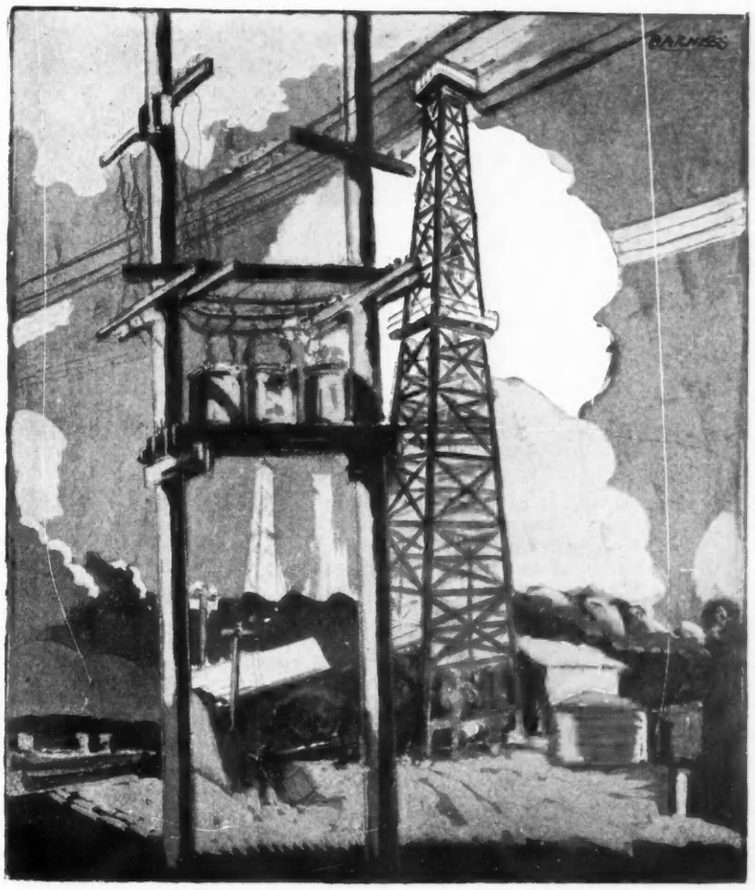

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NORTH LOUISIANA

Rodessa extension into Arkansas probable.

* * *

Lisbon north-end well has markers high.

Shreveport.—Extension of the northern limits of the Rodessa pool into Miller County, Arkansas, by the two-mile north outpost, W. L. McClanahan et al Capps 1, NW SE SW 11-20-28, was watched as the week ended as operators started testing operations.

Seven-inch casing was cemented at 6018 feet earlier in the wek after oil saturation was found in a porous sand in a core from 6074-92 feet. Total depth is 6113 feet.

Located a half-mile north of the Louisiana state line, the test lies in what is referred to as the north Rodessa extension area which is north of a parallel fault running from Cass County (Texas) through the edge of Louisiana into Arkansas.

It is slightly over two miles northeast of nearest of the 20 producers completed in this part of the field. Adjoining the Capps lease to the south, Layton Oil Company and W. A. Thappe have started moving in materials for a test on the 43-acre E. S. Terry tract in fractional Section 14-20-28.

Standard Oil Company of Louisiana completing two producers in the extension area this week, made locations for two additional operations. The company completed Sarah Kaempfer 2, at 5988 feet, flowing 30 barrels through ½-inch choke and Sarah Kaempfer 3, 9-23-16, at 5975 feet flowing 39 barrels hourly through ½-inch choke.

Lisbon Extension

Shreveport. — A half-mile northeast extension of the new Lisbon pool of Claiborne and Lincoln Parishes, was watched as the week ended at Gulf Refining Company's J. J. Henry 1, NW NE section 31-21-4, which was waiting on cement on 7-inch casing, set after logging 17 feet of saturated sand. Total depth is 5214 feet.

Also due to bear close watching in the field this week is T. L. James & Company's Baker 1, SE NE section 25-21-5, slightly over a half-mile north of production, which was drilling below 4915 feet after logging top of anhydrite section 20 feet higher than north edge wells.

Three producers were completed in the area last week. One of these, Standard Oil Company of Louisiana's F. B. King No. 1 SE NE 35-21-5, bottomed at 5306 feet, came in flowing 65 barrels hourly through 1-inch choke to extend production one location westward.

NORTH LOUISIANA
Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
CADDO PARISH (Rodessa)—		
R. W. Norton, Starcke 5, 16-23-16.	504	5973
Standard, S. Kaempfer 2, 9-23-16...	720	5988
S. Kaempfer 3, 9-23-16.....	936	5975
CLAIBORNE (Lisbon)—		
Lyons & Neely, M. Patton B-2, 31-21-4	360	5290
Scout Oil Corp., Vaughn 1, 36-21-5	384	5283
Standard, F. B. King 1, 35-21-5....	775	5306
GRANT PARISH—		
Tri-State Leasing & Dev. Co., Edenborn 1, 13-7-4	*	3031
RAPIDES PARISH—		
C. L. Decker, Lee 1, 21-5-3	*	3550
UNION PARISH (Monroe)—		
Inter-State Natural Gas, Fee 69, 30-21-4e	¶12	2160

*Failures; †Junked; ¶Million cu. ft. gas.

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SHREVEPORT, LOUISIANA

Lake Charles—Houma—Converse
New Iberia—Rodessa—Monroe—Cotton
Valley—Turnertown—Greggton—Houston

ARKANSAS FIELDS

Third Schuler well extends production.

El Dorado, Ark.—A third producer for the new Schuler pool of Union County, 14 miles west of El Dorado, extending the limits of the field a half-mile east, was completed last week by Alice Sidney Oil Company at Morgan 1, NW NE SE Section 18-18-17. Producing from Morgan discovery sand, the well perforated casing from 5548-70 feet with 86 shots, after going to 5737 feet, flowed 1510 barrels during the first 24 hours through 2½-inch tubing, 1090 barrels during the second 24 hours through open tubing and 965 barrels the third 24 hours, 3 hours of which was through 2½-inch tubing and the remainder on ⅛-inch choke.

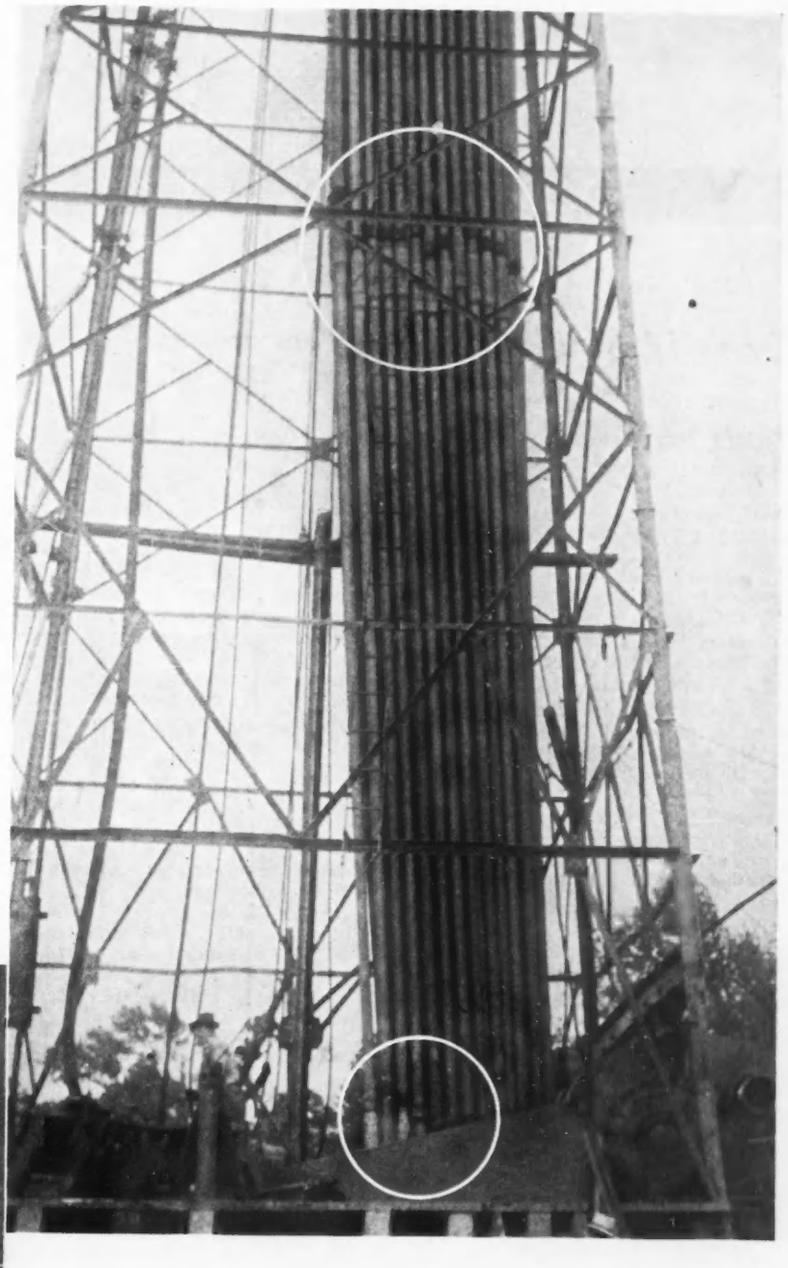
Operators decided not to perforate in two lower sections which showed oil at this time.

As the week ended, a fourth well was testing and activity underway at 12 locations. Testing was Lion Oil Ref. Company's Morgan B-1, southeast offset to its discovery well. Bottomed at 5827 feet, it was perforated at various sections down the hole where saturation was encountered below the discovery pay.

A second pipe line to the area has been completed by Root Petroleum Company from its refinery at El Dorado. It is six inches in size.

Drilled 7 wells and still going strong

In the Rodessa field, Patterson-Ballagh Protectors are accepted as standard equipment for the majority of drilling wells. The photos show installation on external upset drill pipe that has given service in seven wells during the past year and now in the eighth well.



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PATTERSON-BALLAGH DRILL PIPE AND CASING PROTECTORS

Week's 12 completions below field average.

* * *

Mattix area wells awaiting nitro shot.

Hobbs.—Seven Lea County areas shared the 14 new locations made public the past week. The county was credited with 12 completions, all offsetting production. Initial yield of the majority of the completions was below the normal level, particularly in the Eunice and Monument lime areas.

Skelly Oil Company's Van Etten 5, C. NW SE 9-20s-37e, east edge producer for Monument, topped the list of completions with a natural flow of 199 barrels per hour through open tubing at 3875 feet, or 323 feet below sea level. Amerada Petroleum Corporation's Weir 2-B, C SE NW 26-19s-36e, will cause additional development work on the northwest flank, having responded to acid treatment in lime at 4021 feet with a flow of 360 barrels of oil in 9½ hours through 1-inch choke. It has an elevation of 3686 feet. This concern's State 4-T, C NE NW 25-19s-36e, has been completed as a marginal producer, flowing 15 barrels daily on small choke after using acid at 4055 feet, or 353 feet below sea level. Sun Oil Company's Barr 1, C SW SW 24-19s-36e, a northwest diagonial offset to the latter, failed to make a producer after using acid at 4007 feet, with an elevation of 3681 feet, and is coring to about 4032 feet to reacidize.

Amerada Petroleum Corporation's State 1-Q, C W½ NW SE 16-20s-37e, offsetting a well that drilled to water on the southeast edge of the Monument area, flowed 355 barrels fluid, 30 percent water, on preliminary gauge through 1-inch choke after drilling to 3870 feet, or 325 feet sub sea. North end of the field recorded two locations. The Texas Company has rigged up rotary on B. M. Keohane 1, C NE NE 18-19s-37e, and Tide Water Associated Oil Company made location for State 3-J, C SE NW 17-19s-37e. Initial gauge of 25 barrels per hour through 21/64-inch choke was recorded by Stanolind Oil & Gas Company's Gilluly 2-A, C NE NE 24-20s-36e, located on south end of field, after using acid at 3872 feet, and rig has been skidded one location west to drill Gilluly 4-A. The Texas Company's University 1, C NW NW 19-20s-37e, offset to Gilluly 2-A, tested 75 barrels oil and 2,500,000 feet of gas through open tubing after using acid twice at 3878 feet, and may shoot with nitro. Repollo Oil Company has rigged up to drill W. P. Byrd 6, NE NW SW 11-20s-36e.

North Eunice Flow 28 Barrels Hour

Completion of Atlantic Refining Company's State 2-O, C NW NW 32-20s-37e, north portion of the Eunice field, flowing 28 barrels per hour after using acid at 3840 feet, has resulted on a diagonial southeast offset being started by Bert Fields et al on State-Turner 160-acre tract.

Repollo Oil Company's Hair 1, NWc 9-24s-37e, southeast diagonal offset to the westernmost producer in the Mattix area, swabbed and flowed 125 barrels daily at 3575 feet, and is awaiting nitro shot. Gas blowouts from the upper lime; fire and fishing jobs hindered progress on this test. In the Penrose area, Gulf Oil Corporation has started work on Cole-State 2, C NE NE 16-22s-37e, and derrick has been erected for Penrose and Rowan-Nichols Oil Company's Elliott 2-A, near C NE SW 27-22s-37e. Mid-Continent Petroleum Corporation made location for Owens 1, C NW NW 3-22s-37e.

Magnolia Petroleum Company's Hanna 1, C SE NE 7-26s-38e, wildcat in southeast part of the county, was drilling in brown lime and anhydrite at 3445 feet, and is checking low on structure. Gulf Oil Corporation's State-Arnott-Ramsey 1-E, C NW NW 16-25s-37e, is a new project for the Langlie area.

Skelly Oil Company, discoverer of the Skelly area, has made location for Harrison 1-B, C NE NW 9-23s-37e, and G. W. Sims 3, C NW NE 9-23s-37e.

The Texas Company et al's Shepherd 4-B, C SE 5-26s-37e, east outpost for the Eaves area, flowed fluid at rate of 30 barrels daily with 500,000 feet of gas when tested through tubing at 3200 feet, and Rhodes 2, SE NW SE 22-26s-37e, was coring lime at 3280 feet.

Shell Petroleum Corporation has resumed active operations at Hobbs, having made location for Sanger 5, near C SW 27-18s-38e. In the Hardy area, Ohio Oil Company has erected derrick for Hardy 1, NE NE SE 20-21s-37e.

Jim W. Brown et al contracted to drill a wildcat in west portion of county on State land, C SW SW 22-21s-34e.

NEW MEXICO
Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
LEA COUNTY (Eunice)—		
Atlantic Ref. Co., State 2-O, c nw nw 32-20s-37e	700	3840*
Devonian Oil Co., State-Evans 2, lot 16, 3-21s-36e	50	3843
Empire O&R Co., State 1-G, c sw sw 2-21s-36e	400	3852
Gulf, State-Bell 5-F, c sw sw 36-20s-36e	1000	3852
Shell-Devonian Oil Co., Christmas 2, c nw ne 21-22s-36e	400	3838
LEA COUNTY (Mattix)—		
The Texas Co., C. C. Fristoe 1, c sw nw 35-24s-37e	43	3531
LEA COUNTY (Monument)—		
Amerada, State 4-T, c ne nw 25-19s-36e	50	4055
C. H. Weir 2-B, c se nw 26-19s-36e	1500	4021
Repollo Oil Co., Barber 7, ne sw nw 8-20s-37e	600	3875
Skelly Oil Co., Van Etten 5, c nw se 9-20s-37e	5000	3875
Stanolind, O. J. Gilluly 2-A, c ne ne 24-20s-36e	1200	3872
LEA COUNTY (Penrose)—		
J. E. Farrell et al, Walden 1-A, c sw nw 15-22s-37e	25	3746

*Failures; †Junked; ¶Million cu. ft. gas.

YEAR EXTENSION
Recommended in senate for federal oil taxes

Washington, D.C.—Limitation of the continuance of the Federal Oil taxes to a period of one year was recommended to the Senate June 15 in a report by the finance committee, in lieu of the two-year extension provided for by the House of Representatives in passing the bill last week.

The amendment providing for one-year continuance was proposed by Senator Vandenberg of Michigan. No other changes were made by the committee in the bill, which would continue in force all of the so-called nuisance taxes.

The committee's report was seen in Washington as paving the way for a fight between Senate and House with the odds in favor of the latter, in view of its success in imposing its own terms on the Senate in the enactment of the bill to continue the Connally contraband oil act.

Long Beach throws 250 acres open to drilling

Los Angeles.—At a special election held in Long Beach June 15, the proposition of throwing open to drilling of oil wells at Wilmington an area of about 250 acres carried by a large majority. Two proposals were voted upon: one to permit the drilling of one well to each acre and the other to permit the drilling of one well to each five acres. The voters very much favored one well to each acre.

It is now estimated that Wilmington will have an area of approximately 3000 acres, and the production will very likely exceed the recovery per acre at Torrance, due to the presence of at least two producing zones in parts of the field, while in other sections there are third zones. It seems that a higher gravity oil can be expected in the zone below 5000 feet, where some oil ranging from 29 to 30 gravity has been produced. It is understood the present prolific zone from 3400 to 3800 feet will be developed first.

J. M. BISH, for many years superintendent of production for Ohio Oil Company in the Haynesville, Louisiana, district, will retire July 1. O. V. (Speck) Henry, has been named to succeed him.

ROCKY MOUNTAIN FIELDS

New shallow oil field in Central Wyoming.

* * *

Powder Wash test has sand showing production.

Casper, Wyo.—Strong indications of a new shallow oil pool in the central part of Wyoming were seen this week as Wyoming Southern Oil Company's Jennie Evert 1, NWC SW 26-32n-69w, on the West Shawnee Creek structure, Converse County, encountered oil shows estimated at 35 barrels a day from a stray sand at 558 feet. The crude showed 24.8 gravity, 6.9 percent gasoline, and is paraffin base with good lubricating stock content.

Depth of the oil sand in the well apparently places it in the same formation in which the company found gas in Salisbury 1 and 2 which were drilled in the past six months. The discovery has attracted considerable attention to the area and it is likely that drilling will start soon on one or more of the several acreage blocks which have been built up in the region. Work is being pushed on Chadron-Osage Oil Company's State 1, SW SW 16-32n-69w, a deep test which is drilling below 3600 feet.

Continued progress is reported on General Petroleum Corporation's Government 1, NW NW NW 33-47n-100w, wildcat test on the Gooseberry Dome structure, Park County, which swabbed 125 barrels of black oil daily from Tensleep at 5996 feet on test. The hole was blocked by a premature nitro explosion and is milling out casing and will rerun string to complete test.

Big Indian Oil & Development Company has staked location in SW SE NW 26-64n-48w for a 2000-foot test of the Pump Creek structure, a well defined structure to the north and west of the Osage field in Weston County. An outcrop of Dakota formation on the west side of the structure as well as logs of wells drilled in the surrounding territory, indicate that possible producing formations may be reached in this area at a comparatively shallow depth. Originally mapped in 1923, the Pump Creek anticline has not tested because of difficulties in leasing sufficiently acreage to warrant drilling. The company has blocked 15,000 acres for a thorough test of the structure.

Powder Wash Test Has Sand

In the Tri-State area this week Mountain Fuel Supply Company's J. C. Donnell, NE SE 21-12n-97w, on the Powder Wash field, Moffat County, northwestern Colorado, topped saturated sand in the lower Wasatch series at 5320 feet and is shut down at 5326 feet preparing to run 8⅝-inch casing to 5245 feet. A drill-stem test of the sand was made but without satisfactory results and casing will be set before running another test. The company is completing Union Pacific 3, SE NE 15-16n-

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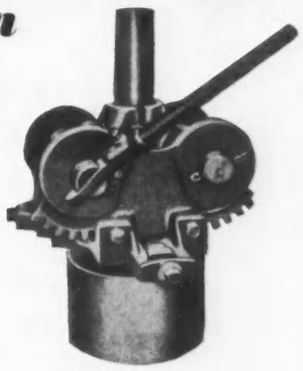

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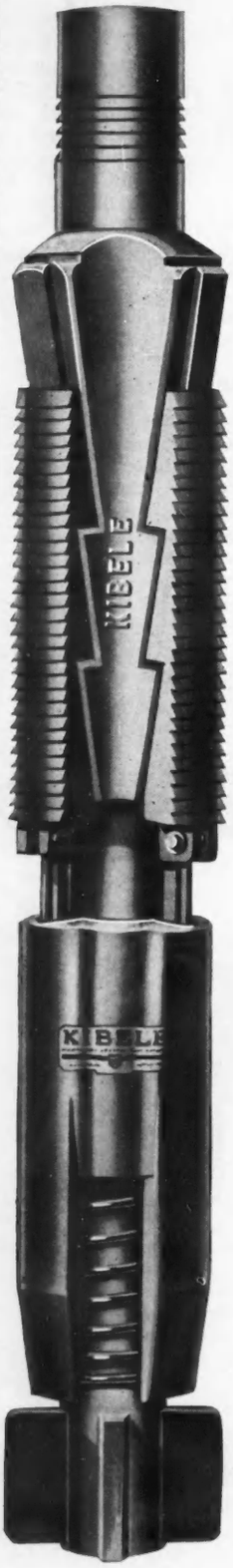

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104w, on the South Baxter Basin field, Sweetwater County, southwestern Wyoming. It bottoms in the Frontier gas horizon and is preparing to shoot with total depth at 2270 feet. Union Pacific 1, CSE NE 29-16n-104w, South Baxter Basin field, is still a location.

On the North Baxter Basin field, Sweetwater County, Mountain Fuel Supply Company's Charles Stone 1, SW SW 18-19n-103w, is drilling at 2785 feet. In Utah, Mountain Fuel Supply Company's E. S. Lauzer 1, NW NW 27-3n-24e, on the Clay Basin gas field Daggett County, is drilling at 4660 feet.

On the Dry Mountain structure, Moffat County, Colorado, Anderson-Kerr Drilling Company and Phillips Petroleum Company's Government 1, CSE SE 19-9n-99w, is relegging derrick and installing new crown block. Hole bottoms at 2495 feet. Anderson-Kerr Drilling Company's Gali Mars 1, CSE NE 17-11n-100w, on the Sheldon Dome structure, Moffat County, is repairing roads. Tools and equipment are in the ditch.

In the Morapos Fault Block, Moffat County, Morapas Petroleum Company's Coles 1, SW SW SE 1-3n-92w, is drilling at 1200 feet in shale. The Texas Company's Iles Investment Company 4, Lot 7, 23-4n-92w, is drilling at 1151 feet.

The Texas Company reported a new well in the Oregon Basin field, Park County, northern Wyoming: Ora Sommers 1, NW NW NW 29-51n-100w.

Stanolind Oil & Gas Company reports Tensleep 1, CNW SE 26-40n-79w, deep test well on the old Salt Creek field, Natrona County, central Wyoming, at a depth of 2725 feet where well is coring ahead. Hole drilled through the Wall Creek producing horizon of the field last week.

Possible oil pool found by Ohio student geologists

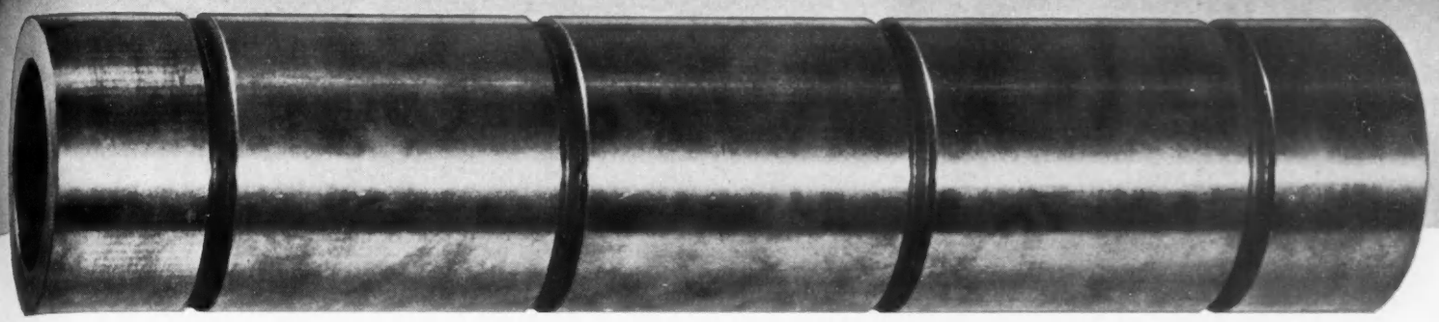
Alliance, Ohio.—Kirk Stephenson and George Dawson are serving as assistants to Prof. G. F. Lahm, engaged in field work in Washingon township, Carroll County, to complete their majors in economic geology at Mt. Union College. At their direction, three wells were drilled that showed possibilities of a productive pool. Two are on the William Wilson farm and the third on the A. H. Hay tract. They average 1300 feet, drawing their production from the lower Berea sandstone.

Detailed geological information, including a map of the subsurface rock topography of the Washington township area, has been sent to the U. S. Geological Survey.

MOUNTAIN STATES Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
MONTANA		
GLACIER COUNTY (Cut Bank Field)—		
Glacier Production Co., O'Brien 2, cnw sw 32-34n-5w	250	2750
Texas Co., Unit 3 Section 8, cse sw 9-32-5w	155	3007
Annand & Hutchings, Federal Land Bank 3, se sw 11-34n-6w	85	2892
TOOLE COUNTY (Kevin-Sunburst Field)—		
F. C. Platt, Government 1 051864, se se ne 35-35n-3w	15	1528
Twin Butte Syndicate, Thompson 1, nw ne nw 33-35n-3w	10	1696

*Failures; †Junked; ¶Million cu. ft. gas.



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CALIFORNIA FIELDS

Indications are Adam productive area will be large.

* * *

May drill Oxnard heavy oil discovery test deeper.

* * *

State's deepest wildcat perforating upper zones.

Los Angeles.—The Adam area in Santa Barbara County, located approximately 10 miles from Santa Maria field in Santa Maria Valley, is becoming one of the live spots of California. Last week three offsets were staked to Hancock-Bush Oil Company's Bradley 1, completed for 3500 barrels of 16 gravity clean oil. The new field, being served by the Union Oil Company's pipe line and gathering system, from present indications probably will be rather large, but most of the acreage is held in big blocks.

The most recent completion at Adam was Union Oil Company's Vincent 3-30, Section 30-10-33. It made 3700 barrels of 16 gravity oil through a one-inch bean from 4227 feet. In this hole, 13⅜-inch was cemented at 1600 feet, 8⅝-inch was landed at 2768 feet, and 1498 feet of 6⅝-inch was run to 4223 feet. Perforations were at 3877 to 4221 feet, 3633 to 3785 feet and 2748 to 3520 feet. Three-inch tubing was hung at 4232 feet. The well was shut in. Hancock-Bush Oil Company's Bradley 1, bottomed at 5157 feet, was also shut in after testing.

Will Test Oxnard Wildcat

The wildcat test near Oxnard in Ventura County, drilled by El Rio Oils-Canada, which apparently has proven a new heavy oil field, will be given a thorough test on the pump before decision is reached as to whether or not to drill deeper. This hole is bottomed at 3024 feet, and flowed several hours before sanding up. The oil was 13 gravity. Practically every acre for miles in every direction from the well is under lease, but it is doubtful if any new wells will be started until more is known of the present hole. A number of wildcat tests have been drilled in this general area during the past several years.

In the Ten Section area in Kern County, 12 miles from Bakersfield, Superior Oil Company—Union Oil Company's joint test, K. C. L. 8, Section 11-30-26, with a depth of 12,618 feet, is being tested in upper zones. It is the deepest hole ever drilled in California. These tests are being made through the 7-inch casing, the last perforation points being between 6870 to 6875 feet and 6825 to 6830 feet.

Another deep test in California which has begun to attract attention is Ketleman North Dome Association's 18J-4, Section 18-21-17. An outpost, it was drilling at 10,706 feet. This well is attempting to pick up the oil sand found by the McAdams well last year. The latter had to be abandoned because of mechanical troubles. Casing was cemented at 10,706 feet. Last formations were reported as shale and streaks of sand.

The 10,000-foot wildcat test in Kern County in the Lerdo area is still recovering stuck drill pipe, with bottom at 10,056 feet. This is Arkelo Petroleum Company's No. 41, Section 23-28-26. All of the pipe except about 200 feet has been recovered. Since the last pipe cemented in the hole was 13⅜-inch at 726, this gives the well 9330 feet of open hole, which is probably a state record for open hole. It is quite likely a string of pipe will be cemented when the present drill pipe in the hole has been recovered.

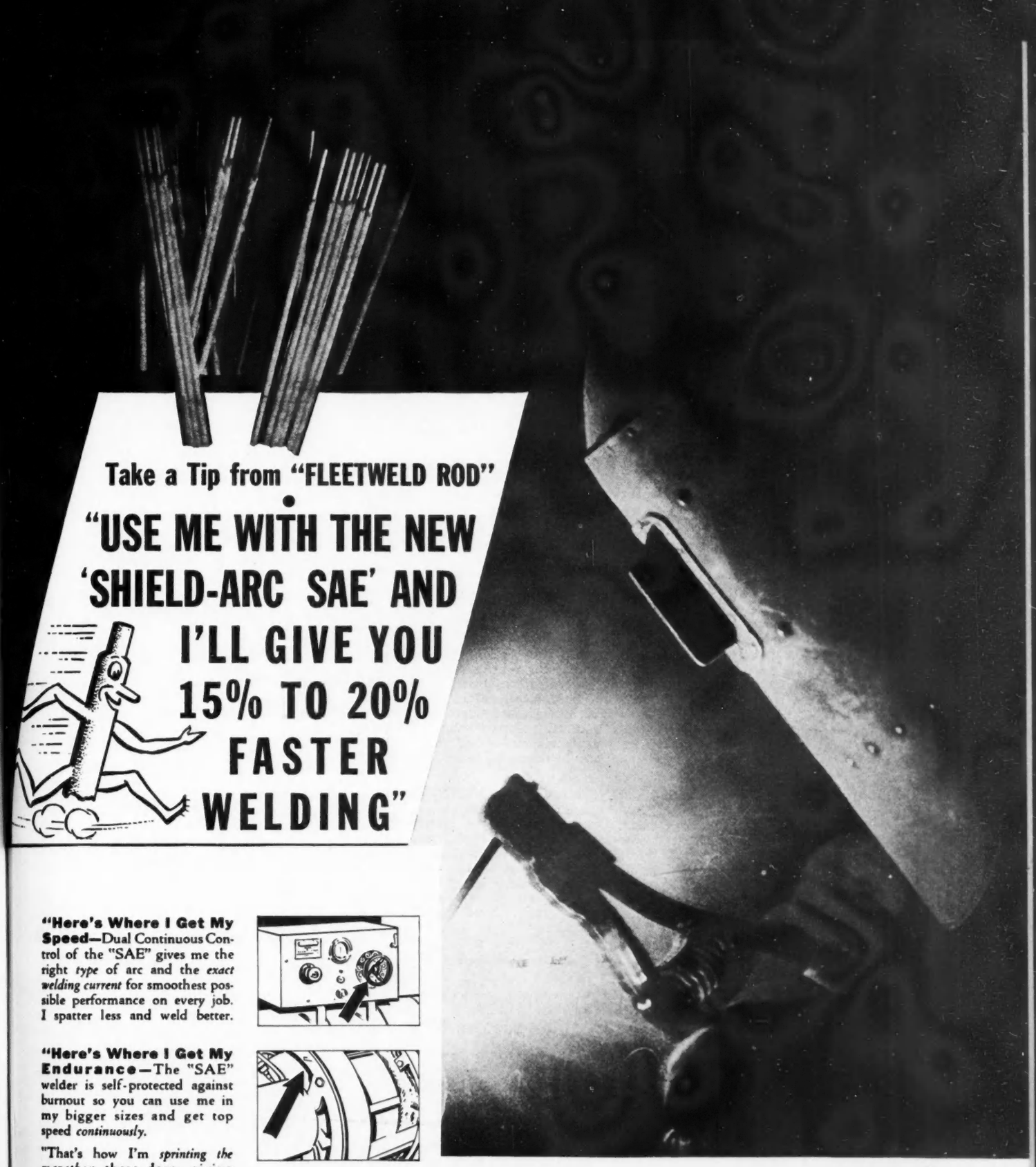
Dominguez Test Fishing

At Dominguez, Union Oil Company's Callender 50, bottom at 10,435 feet, is still fishing for swab assembly and 426 feet of 3½-inch liner, including 382 feet of perforated landed at 10,430 feet. This hole had a lot of trouble in shutting off water after landing 10,050 feet of 6⅝-inch, but it is felt the company has a producer if the troubles can be solved. In another part of this field, Shell Oil Company ran into trouble at 9598 feet, when a fishing job developed. Top of fish is at 7910 feet. This hole also was seeking the lower part of the eighth producing zone, already proven.

Union Oil Company's Bell 100 at Santa Fe Springs, which reached 10,789 feet, is still fishing for stuck drill pipe, with the top of the pipe at 7443 feet.

In the old Lawndale field in Los Angeles County, where oil was first discovered in 1928, but where the area was found to be spotted and most discouraging to the operators, A. A. Douglas and associates have taken over the Peck lease of Smith Development Company and will deepen Peck 9 below 6364 feet for a test of the Schist—conglomerate zone.

In Kern County, two miles north of



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Mount Poso field, it appears that Ring Oil Company's Bowles 29-2, Section 29-26-28, has discovered a small heavy oil field. Bottomed at 1750 feet, the test made 245 barrels of 16.1 gravity clean oil. A string of 8⅝-inch casing was cemented at 1725 feet. The company has made location for Shapiro 1 in the same section.

120 Producers at Wilmington

Wilmington, the busiest field in the state, has around 120 producing wells, with 13 new locations being announced last week.

It is indicated that the producers in Wilmington will agree to reduce their production around 50 percent, with a minimum of 100 barrels a day to the well. If producers will do this, then it is expected that some major pipe line company will make connections in the field and post a price. At present, several of the smaller producers are selling their oil at prices ranging from 35 to 50 cents a barrel at the well.

Has Reached Peak

Three or four of the more important and larger producers in the field are

CALIFORNIA

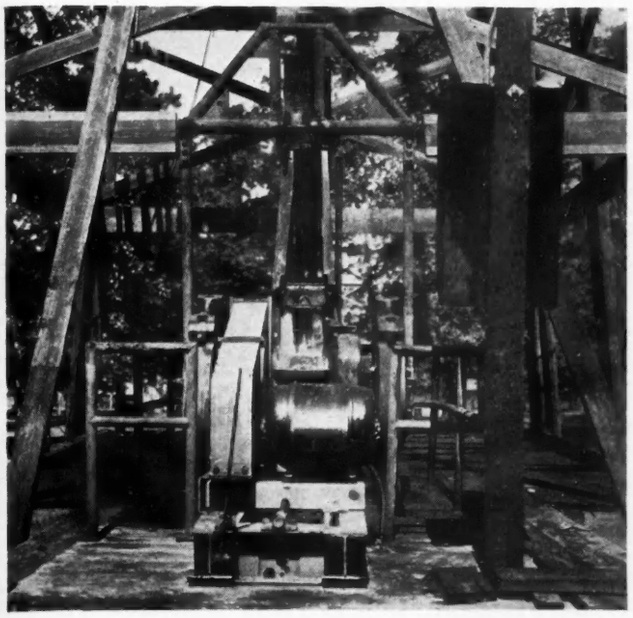
Completions

Company, Well Location	Initial Prod. Bbls.	Depth
EDISON—		
North American Consolidated, Brown 4	100	1652
ELK HILLS—		
Richfield Oil Corp., Crampton 7-H..	75	3065
FRUITVALE—		
Meridian Oil Co., Fee 3	60	3141
Western Gulf Oil Co., Sawyer-Reed 4	820	3774
KERN FRONT—		
General Pet. Corp., Young 53	10	1989
ROUND MOUNTAIN—		
Eastmont Oil Co., Olcese 2	320	1880
Honolulu Oil Corp., 13-20	400	1830
MOUNTAIN VIEW—		
Ohio Oil Co., Derby 5	600	5382
MOUNT POSO—		
Ring Oil Co., Bowles 29-2	200	1740
MIDWAY SUNSET—		
C. C. M. Oil Co., No. 34	390	2912
Hugh B. Evans, No. 16	170	2315
Quality Oil Co., Cypress 5	250	2110
Shell, McKeon Fee 3	300	2067
McVAN—		
Desert Glow Oil Co., No. 1	40	1254
Hobee Oil Co., McVan 1	20	1258
SANTA MARIA—		
Union Oil Co., Squires 18	140	4107
KERN COUNTY—		
Bojaki Oil Co., Bowen 2	*	1959
Union Oil Co., Core Hole 3	*	3226
LOS ANGELES COUNTY—		
Signal Finance Co., No. 1	*	9390
EL SEGUNDO—		
Texas Co., Johnson 2-2	*	7750
Richfield Oil Corp., Santa Fe 1	275	7640
HUNTINGTON BEACH—		
Texas Co., Brown 9	285	3832
WILMINGTON—		
Alford Oil Co., Class. Yards 2	150	3730
Burnoil Pet. Corp., Taylor 1	350	3462
Crude Oil Dr. Co., Mason 1	250	3390
D. D. Dunlap, Wilmington 1	350	3470
General Pet. Corp., Ford 6	1165	3905
A. T. Jergins Trust, No. 1	350	3448
No. 12	450	3435
J. E. O'Donnell, No. 41	275	3674
Pacific Western Oil Co., Pet. Sec. 2	185	3395
Pongratz Oil Co., Ronan 2	750	3577
Ring Oil Co., Wilmington 4	700	3610
Royalty Service Corp., Gilmore 469-1	290	3350
Selegna Pet. Corp., No. 1	600	3308
Union Pacific Ry Co., Offset 11	825	3915
Offset 12	2045	3898
Offset 14	355	3934
Offset 15	1540	3860
Offset 21	500	3418
Offset 24	400	3513

*Failures; †Junked; ¶Million cu. ft. gas.

MORE THAN JUST HORSEPOWER—

ECONOMY



35c PER DAY pumps this well at Humble, Texas

PURCHASED ELECTRIC POWER

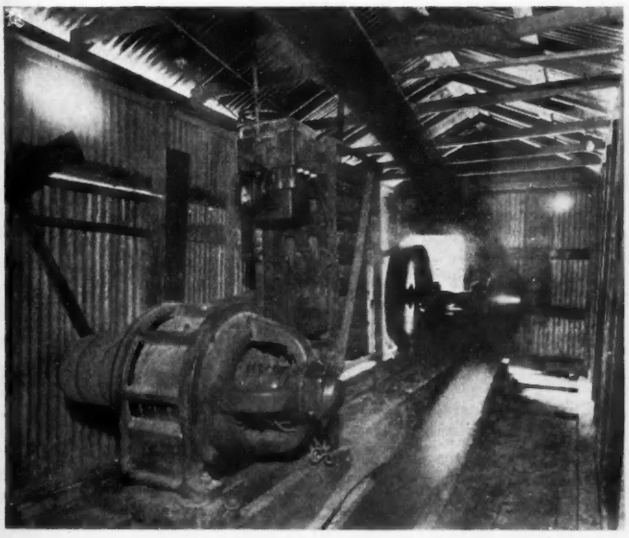
FULFILLS

EVERY REQUIREMENT

FOR OIL WELL

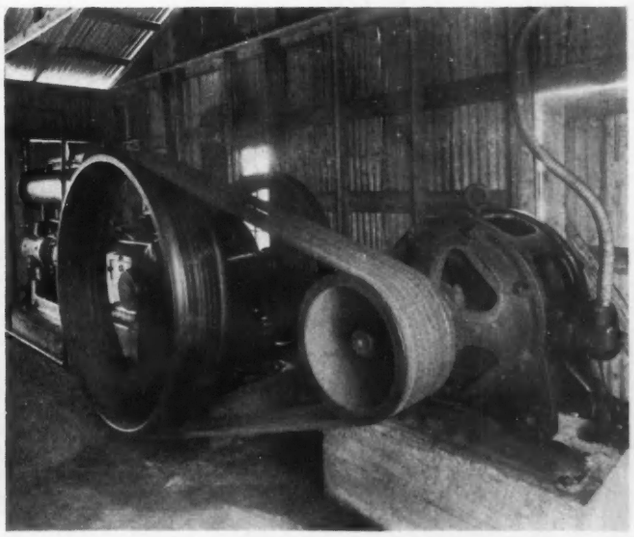
PUMPING

DEPENDABILITY



THIS MOTOR has been pumping for 17 years at Goose Creek, Texas

LOW UPKEEP



NO MAINTENANCE expense in 5 years operation at Barbers Hill, Texas

HOUSTON LIGHTING & POWER COMPANY

taking care of their own production without trouble and without hurting the going market. These producers have already reduced their daily production at least 40 percent. The actual daily production for the field has been ranging from 40,000 to 42,000 barrels a day recently, but the potential exceeds 60,000 barrels a day. It is generally felt that the peak of drilling activity has already been reached, unless a large new area is opened to drilling. An election is being called at Long Beach to decide whether a new area is to be opened to drilling. Two petitions are being circulated. One would restrict drilling to one well to an acre, and the other would restrict drilling to one well to five acres. The Long Beach city council is opposed to both propositions.

EASTERN FIELDS

Two important deep tests are failures

Pittsburgh.—Failure of two important deep tests marred the Eastern Fields activity report for the past week, discrediting a period that saw an unusually high number of completions. A total of 76 wells were reported completed, of which 38 were producers, 19 gas wells and 19 failures.

The first attempt to find gas in the Medina sand in Allegany County, New York, failed when the test on the Bank of Angelica farm, Allen, went through the sand without a commercial show. Medina was topped at 4804, and was 98 feet thick at this point. Drilling was continued some distance into a white formation below the sand. There was nothing in the nature of commercial production in the Oriskany sand, passed through above the Medina, although other tests farther west in the same town found fair production in that formation. Kaufman interests, Olean; Hanley & Bird, Wittmer Gas Company, and Fairman Brothers drilled the test.

Salt water intruded in the test of A. J. Wise, Jr., and others on the Beaver Falls Airport Corporation lease, South Beaver Township, Beaver County, Pennsylvania, shortly after the tools entered the Oriskany, which was topped at 4814. Another test in this township is being drilled by John T. Galey on the Minnie Welgle farm.

May Call for Offsets

In Illinois fields announced drilling plans of several operators kept interest centered on the Central Basin fields. Ohio Oil Company will start immediately on a location on the Charles Palmer farm, a mile northwest of Noble, Richland County. A strike on this lease will force Pure Oil Company to start offsets as the Palmer farm is in the middle of a Pure Oil block. Similarly, other companies may be forced to start drilling operations within the next few weeks to protect their leases in adjoining Jasper and Clay Counties.

Pure Oil Company announced three new locations in the Clay City field. Pure's Weiler 1 and Bunny Travis 1 are producing, Sarah M. Bechtel 1 is nearing pay sand. The new locations are Sarah M. Bechtel 2, a southern offset to the Bunny Travis 1; Albert Travis 1, a northern offset to the Sarah Bechtel 1, and Nick Moseley 1, a southeastern offset to Bunny Travis 1.

Bunny Travis 1, is the largest well brought in during the present activity in southern Illinois, registering initial production of 2500 barrels which has now dropped to a steady yield of 1400 barrels daily.

First Deep Test For Fayette County

Albert Rush and H. A. Milligan will spud in the first Fayette County deep test this week on the Bahde farm, 1½ miles west and a half mile north of St. Peter. Taylor Drilling Company has the contract, and the well will be carried to the McCloskey sand, from which the Bunny Travis 1 is producing in Clay County. A 9¾-inch hole will be used in case it is desired to go on down to the Trenton or St. Peter sand.

Ohio Has Largest Wells of Week

Preston Oil Company and Pure Oil Company completed the largest Eastern Fields producers of the week—both in Ohio. The Preston well was on the Lloyd Bailey farm, Jackson County. It produced 135 barrels a day from the Clinton at 3180 feet. The Pure well was Danson Nethers 5, Licking County, which produced 100 barrels from the same formation at 3258 feet.

RUNS 4 WELLS AND LINE PUMP

Model LE—the 55-horsepower size—Case oil field engine operating geared power unit near Breckenridge, Texas.

Change to CASE CUT COST AND CARE

LOW FIRST COST
LOWER OPERATING COST
LOWEST UPKEEP COST

Save the cost of massive foundations needed for cumbrous, unbalanced engines . . . the daily labor demands of slow-starting, tediously tended power plants . . . the risks of damage and delay . . . the certainty of ultimately expensive upkeep. Change to the Case CE (35 H.P.) or LE (55 H.P.) oil field engines . . . completely self-contained power plants that come ready to run . . . with continuous pressure lubrication to all important points . . . operating attention trimmed down to a trifle.

Available with automatic cut-outs that stop the engine at the first flash of danger . . . one that works with a rise of temperature above normal . . . another that acts instantly if the oil pressure falls below normal. Fitted for natural gas, gasoline, or both, to suit any circumstances.

J. I. CASE COMPANY • RACINE, WIS.

Distributed and serviced in the Mid-Continent field by Southwest Equipment Co., Dallas and Kilgore, Texas. Stocks at Dallas, Houston, Kilgore, Texas; Shreveport, Louisiana; Oklahoma City, Oklahoma; Wichita, Kansas.

EASTERN FIELDS
Completions
OHIO

Company, Well and Location	Init. Prod. Bbls.	Depth
ATHENS COUNTY—		
Gibson & Co., Wells Vandyke et al 1	¶1/3	735
Williams Bros., Grace Leslie 5	¶	782
Ohio Fuel Gas Co., State of Ohio 4	*	1580
J. Winner 2	*	1595
CARROLL COUNTY—		
Hannum Oil & Gas Co., A. A. Ray 1	4	1245
W. S. Wilson 2	*	1265
CUYAHOGA COUNTY—		
National Smelting Co., Subdivision 1	24	2608
GUERNSEY COUNTY—		
Ohio Fuel Gas Co., A. W. Marling 1	*	1105
George Jewell, M. Kennedy 2	*	1216
Merle McCullough, Walter Burnsworth 1	*	1127
HENRY COUNTY—		
N. L. Stevens, N. Jackson 1	1	1750
HURON COUNTY—		
A. C. Leathers & Co., E. B. Barras	¶2/3	835
Levi Hartwell	¶	837
JACKSON COUNTY—		
Preston Oil Co., Lloyd Bailey 1	135	3180
JEFFERSON COUNTY—		
C. S. Kelly et al, James A. Tilfer 2	*	1200
KNOX COUNTY—		
Sterl Brown & Co., Allen Rine 3	7	760
LICKING COUNTY—		
I. T. Bebout et al, A. Meshelman 1	1	720
Preston Oil Co., J. C. Wright 14	3	703
Pure Oil Co., Danson Nethers 5	100	3258
Allen Willie, Caldwell & Currie	30	2963
McClay Bros., Townsend Jury 7	8	2290
Armbruster & Stricker, Sarah Patton 8	2	756
Geo. Vandergrift, T. R. Vanallen 2	¶	697
MEDINA COUNTY—		
Passon & Co., Steve Mameth 2	*	2915
MEIGS COUNTY—		
Meigs Development Co., Charles Cur Estate 1	¶1/3	2021
A. M. Roberts, Jennie Jacks 4	¶	659
MONROE COUNTY—		
Homer Newhart et al, Wm. Scott 6	15	1536
N. T. Staudt et al, Alsa S. Jackson	8	1550
Heilser Oil & Gas Co., Grace Mallet 1	2	1360
MORGAN COUNTY—		
Hummel & Co., A. Hummel 7	½	200
Joe Pierce, Charles Nelson 2	¶	1360
S. C. Parks & Co., George Linscott 25	¶	1607
J. V. Bowman, C. Huffman 6	¶	1609
MUSKINGUM COUNTY—		
H. H. Everett Co., Ella Gill 5	12	1268
NOBLE COUNTY—		
W. M. Patton, Grover Hoskins 4	*	1665
Walter Boone et al, L. C. Wilson 1	*	660
PERRY COUNTY—		
Preston Oil Co., Sunday Creek Coal Co., 147	35	3695
Pure Oil Co., Martha Miller 1	¶1/3	3175
SENECA COUNTY—		
Keiner & Co., Rufus Martin 2	¶	1478
SUMMIT COUNTY—		
East Ohio Gas Co., Albert Wise	*	4093
VINTON COUNTY—		
Cooperative Oil & Gas Co., Cooperative Oil & Gas Co. 5	6	1150
Kelch Bros., Mary Geiger 5	*	946
WASHINGTON COUNTY—		
Devitt & Co., Francis Fisher 18	5	845
Hall & Hanlon & Co., Mary Moore 2	½	1432
H. B. Walker, Trustee, John Sheets 43	1	140
Russell & Co., J. Lorentz 26	*	655
WAYNE COUNTY—		
Preston Oil Co., John Schell 1	25	3210

KENTUCKY

DAVIESS COUNTY—		
Kentucky Producing Corp., E. L. Omstott 3	*	920
ESTILL COUNTY—		
Petroleum Exploration Co., Tickey Fork 14	1	....
Tickey Fork 30	2	....
HANCOCK COUNTY—		
W. E. Hupp, Emma Falls 4	50	....
Frank Damron et al, Elsie Bates 1	¶	....
LAWRENCE COUNTY—		
Necessity Oil Co., Claude Wheeler 1	1	1400
McLEAN COUNTY—		
A. D. Noe et al, Eaves Barrett 1	*	2035

NEW YORK

ALLEGANY COUNTY—		
Kaufman et al, Bank of Angelica	*	5170

*Failures; †Junked; ¶Million cu. ft. gas.

WEST VIRGINIA

Company, Well and Location	Init. Prod. Bbls.	Depth
BOONE COUNTY—		
Pure Oil Co., Lafollette et al 43	5	3314
CALHOUN COUNTY—		
H. S. Adams et al, Wilmouth Heirs 1	20	1930
W. A. Bickerstaff, W. H. Freed Heirs	3	1472
CLAY COUNTY—		
South Penn Oil Co., Brown et al 40	6	1935
JACKSON COUNTY—		
Mountain Iron & Supply Co., Halbert Heirs 4	3	1664
KANAWHA COUNTY—		
Godfrey L. Cabot, Inc., Holmes Morton et al 1	¶4½	1830
Owens Illinois Glass Co., L. A. Myers 11	¶¼	1243
United Carbon Co., J. & M. Osbourne 13	¶	4010
LINCOLN COUNTY—		
Martin Gas Co., Black & Yeager 2	¶3	3147
Blue Ridge Gas Co., C. E. Wilkerson 1	¶	3357
MARSHALL COUNTY—		
Cameron Heat & Light Co., Wm. Reese 1	¶	2940
PLEASANTS COUNTY—		
Dinsmoor & Co., J. C. Cunningham 7	2	550
Jonathan Allison 1	1	969
C. J. Higgins 2	1	854
Perry Riggs, United Bank of Middlebourne 1	1	1845
RITCHIE COUNTY—		
Sable Oil Co., Hall Heirs 5	1	1470
ROANE COUNTY—		
South Penn Oil Co., O. D. Stockley 113	20	2180
WIRT COUNTY—		
Oil City Trust Co. et al, Roberts et al 61	15	975

PENNSYLVANIA

BEAVER COUNTY—		
A. J. Wise, Jr., Beaver Falls Airport 1	*	4819
WASHINGTON COUNTY—		
Parkinson & Dague, M. B. Rodgers 2	*	3185

ILLINOIS

CLINTON COUNTY—		
Santa Fe Oil & Gas Co., P. Kleinekorte 3	*	1084
BOND COUNTY—		
Hempen and Burgess, Louis Siever 1, sw nw se sec 16-5n-3w, Central twp, elev 537 ft, basal Chester	*	1087
CLAY COUNTY—		
Pure Oil, B. Travis 1, sw ne sec 33-3n-8e, Clay City twp., elev 434 ft.	2642	2960
CLINTON COUNTY—		
Geo. Timberlake, Leo Bergmann 1, nw nw sec 8-1n-3w, Santa Fe twp, elev 505 ft, top Carlyle sand, Chester series 1042 ft, was shot with 20 qts	10	1059
CRAWFORD COUNTY—		
Tide Water Associated, J. J. Wattleworth 18, c sw sw sec 10-7n-13w, Oblong twp, elev 531 ft, top Robinson sand 980 ft.	3	1016
Mahutska Oil Co., R. M. Clark 19, se sw sec 17-7n-13w, Oblong twp, elev 513 ft, top Robinson sand 962 ft	9	994
LAWRENCE COUNTY—		
Warren Hastings et al, G. W. Hill 1, c sw se sec 30-5n-10w, Russell twp, elev 428 ft, top Pennsylvanian sandstone 288 ft	¶¼	310
Victor Christensen 1, se sw sw sec 11-3n-12w, Lawrence twp, elev 430 ft, top McClosky sand 1753 ft.	40	1844
Lindell McCullough 1, c sw sw sec 29-5n-10w, Russell twp, elev 433 ft, top Pennsylvanian sandstone 648.	*	657
McDONOUGH COUNTY—		
Thos. Terrill, J. Hughbanks 3, se sw sec 16-4n-4w, Lamoine twp, top Hoing sand 428 ft.	10	440
MARION COUNTY—		
Adams Louisiana Oil Co., Glenn Merryman 4, se sw sec 21-4n-1e, Patoka twp, elev 503 ft, top Benist sand 1401 ft.	40	1421
Glenn Merryman 5, sw sw sec 21-4n-1e, Patoka twp, elev 495 ft, top Benoist sand 1400 ft.	60	1413
Hempen and Burgess, Walter Adams 1, ne nw sec 33-4n-1e, Patoka twp, elev 506 ft, basal Chester	*	1495
WABASH COUNTY—		
Mahutska Oil Co., Mark Madden 12, nw ne sec 7-1n-11w, Wabash twp, top Biehl sandstone 1401 ft.	80	1440

*Failures; †Junked; ¶Million cu. ft. gas.

Successful week with no failures reported

Mt. Pleasant, Mich.—Michigan scored 23 successful completions dring the week, void of failures for the first time in several months. Twenty-two completions were for oil and one in shallow gas. Buckeye, Gladwin County, accounted for 14 of the total new producers.

Gordon Oil Company's Parker 1, Section 29-12n-9w, Montcalm County, reported last week as a potential pumper in Monroe lime after further tests developed water and indicated only a thin pay section. It is deepening from 3380 feet and will test for additional pay or big water.

Buckeye Producer's Committee is still holding this week to 100 barrel prorated with a 5 percent overage, but has laid down new tubing and potential-taking rules said to be more stringent in effect.

Michigan produced 1,310,000 barrels of crude in May, according to figures of the Oil and Gas Association of Michigan, a decline under April. Buckeye field with 102 wells led with average of 16,280 barrels daily. Porter-Yost in Midland County averaged 10,340 barrels. Sherman - Isabella 2880, Arenac 3238 barrels. Daily average production for April for all the state was 44,858 barrels.

MICHIGAN
Completions

Company, Well and Location	Init. Prod. Bbls	Depth
ALLEGAN COUNTY—		
Lentz & Miller's Brenner 1, sw nw nw 16-4n-13w	600	1615
Buege 1, se sw ne 17-4n-13w	450	1590
Hardy 1, n½ ne nw 21-4n-13w	96	1560
Muskegon Oil Co., Moomey 2, sw ne se 17-4n-13w	350	1587
GLADWIN COUNTY—		
Sun, Strohkirch 1, ne se se 3-18n-1w	175	3656
Okerman 2, sw nw se 10-18n-1w	480	3650
Mammoth P&R, State C2, nw se se 10-18n-1w	775	3649
State B4, ne se se 11-18n-1w	1260	3631
Smith Pet. Co., Reed 3, ne se ne 11-18n-1w	500	3637
Reed 4, nw se ne 11-18n-1w	680	3633
Rex O&G., State A3, se ne se 11-18n-1w	1800	3636
Wicklund Dev. Co., State B4, nw sw ne 11-18n-1w	850	3637
State D2, ne nw ne 11-18n-1w	400	3630
Socony Vacuum's Dalley 2, nw se nw 12-18n-1w	380	3631
Beaver, Tr., State A4, sw nw ne 14-18n-1w	1200	3640
Bell & Mark, Lincoln Natl's 1, ne ne se 35-18n-1w	280	3601
Garfield Pet., McMahon 1, nw sw sw 36-18n-1w	500	3585
Petroleum Investor, Upton 1, se ne nw 36-18n-1w	120	3600
ISABELLA COUNTY—		
Pure, Embry A3, se ne ne 33-15n-6w	350	3643
Embrey 2, se se se 33-15n-6w	400	3637
MUSKEGON COUNTY—		
West Michigan Co., Niza 1, c nw 5-9n-14w	¶1	1245
OGEMAW COUNTY—		
McClanahan Oil Co., Heintz 5, sw se se 13-22n-1e	50	2806
Newell & Wougher, LaVanaway 1, nw se se 19-22n-2e	48	2746

*Failures; †Junked; ¶Million cu. ft. gas.

IMPORTANT WILDCAT TESTS

CALIFORNIA

KERN COUNTY

DEVIL'S DEN—Amerada Pet. Corp.'s Beer 4, 17-26-19, dr shale 2474 ft. Den Pet. Co.'s Bates 1, 20-25-19, td 4276 ft, fsh slip. Geo. Goodrum's Baron 1, 24-25-18, sd 320 ft. Lube Oil Co.'s Gordon 1, 2-25-18, sd 4280 ft, to drop from report.

LERDO—Arkelo Pet. Co.'s No. 41, 23-28-26, td 10,056 ft, fsh dr pipe, only 250 ft left in hole, last casing 13⅜ in at 726 ft.

CARRISA PLAINS—Anchor Oil Co.'s No. 1, 31-31-22, grading roads. Eocene Oil Co.'s No. 1, 31-31-22, lcn.

BENA—Bacal Oil Corp.'s No. 1, 5-30-30, dr gray sand 1550 ft. Cajalco Pet. Co.'s Brown-Pal 1, 9-30-30, dr shale 2710 ft.

PREMIER—Bojaki Oil Co.'s Bowen 1, 28-27-27, td 1959 ft, abn in shale. General Pet. Corp.'s Umbson 1, 36-27-26, bldg rig.

ROUND MOUNTAIN—Calif. Western Oil Co.'s Durnal 1, 4-28-29, lcn; No. 2, 32-27-29, rig. Patton-Baldwin Oil Co.'s No. 1, 32--28-29, dr shale 1475 ft. J. J. Tavis' No. 1, 4-29-29, rig.

KERN FRONT—C.C.M. Oil Co.'s Carter 1, 7-27-27, dr shale 2573 ft. Seskayden Oil Co.'s No. 3-A, 17-28-27, td 2890 ft, co.

WASCO—Continental Oil Co.'s KCL A2, 8-27-24, rig. Seaboard-Tide Water Associated's KCL C-1, 26-27-24, td 9309 ft, ran formation tester 9231 ft, recovered 700 ft gas cut mud.

ROSEDALE—Continental Oil Co.'s KCL B-1, 12-29-26, dr shale 9141 ft.

JASMINE—Doyle Pet. Corp.'s Quinn 1, 15-25-27, td 2956 ft, plug 2882 ft, bailing.

EDISON—East Edison Oil Co.'s No. 1, 23-30-30, dr shale 1380 ft. Golden Bear Oil Co.'s Cohn 1, 12-30-29, dr sand 350 ft.

GRAPEVINE—Hall-Baker Co.'s No. 11-1, 14-10-19, dr shale 1773 ft. Ohio Oil Co.'s Tile Ins. D-1, 21-11-19, dr shale 8967 ft. Reserve Oil & Gas Co.'s Ritchie 33-1, 33-11-19, td 6030 ft, plug 4990 ft, sd, will drop from report; Tejon 33-2, sd 4505 ft, to drop from report; No. 33-3, td 4431 ft, shut in, to drop from report; No. 33-4, td 4570 ft, recemented 8⅝ in at 4540 ft, was wet. Wilshire Oil Co.'s No. 1, 5-10-19, td 4452 ft, taken over Buffalo Oil Co. to rework.

NORTH KERN RIVER—Hub Oil Co.'s No. 1, 8-28-28, sd 3320 ft.

KERN RIVER—Italo Pet. Corp.'s Koshland 1, 19-28-28, rig. Ray Luse's No. 1, 10-28-28, rig.

SAN EMIDIO—Kern Leasing Co.'s No. 2, 14-10-23, spud 5/30, dr 200 ft cable tools. Union Oil's No. C-3, 33-11-22, td 3226 ft, in shale, abn. Union Oil's Morrison 1, 31-11-22, rig, core hole.

STRAND—Ohio Oil Co.'s KCL E-2, 6-30-26, dr shale 8075 ft.

TEN SECTION—Shell Oil's Canal 21-14, 14-30-25, dr sand and shale 8545 ft. Superior Oil-Union Oil's KCL 8, 11-30-26, td 12,618 ft, stuck dr pipe, plug 10,380 ft, ran formation tester, recovered 400 ft gas cut mud, then plugged 10,328 ft, gun perforated, set packer 6840 ft, to test.

FRUITVALE—Shell Oil's KCL A-36-31, td 1028 ft, wocs 13⅜ in at 1028 ft.

WEST MOUNTAIN VIEW — Sunset Oil Co.'s Sunset-Starr 1, 17-30-28, td 6794 ft, last showings 5900 ft, sd.

McGUNDEN — Superior Oil-A. T. Jergins' Crome Com. 2, 36-29-28, dr shale 2350 ft.

SOUTH MARICOPA — Trans-Line Pet. Corp.'s No. 1, 3-10-23, sd 662 ft.

MOUNTAIN VIEW — Union Oil-Standard Oil's No. 1, 1-30-28, lcn.

RIO BRAVO—Union Oil's Kernco 1-34, 34-28-25, dr brown shale 8820 ft.

MIDWAY SUNSET—Valley Oil Co.'s No. 1, 18-32-23, td 3170 ft, plug 2780 ft, formation tester recovered mud and water, sd.

BAKERSFIELD—Wilshire Oil Co.'s F. & P. 1, 36-29-27, dr shale 5360 ft.

MISCELLANEOUS

HUMBOLDT COUNTY—Texas Co.'s Eureka 2, 22-3-1, td 7708 ft, m on bit.

KINGS COUNTY — Birch-Royer Oil Co.'s Wm. Orr 1, 5-23-17, spud, 6/7, dr 500 ft. Ray Bisconer's No. 1, 11-24-20, lcn. Central Calif. Utilities' Kettleman-Lakeview 3, td 1202 ft, plug 1190 ft, sd. Dudley Ridge Oil Corp.'s No. 2, 11-24-20, dr sand 1050 ft. Kettleman View Oil & Gas Co.'s No. 1, 9-22-19, td 4787 ft, perforated 4300 to 4400 ft, co. Glen C. Stone's Teeter 1, 25-20-20, dr sandy shale 1225 ft. Tri-Counties Oil Co.'s Olson 1, 10-23-22, sd 4300 ft.

SAN BENITO COUNTY—Tide Water Associated's Murphy Ranch 1, 5-12-4, td 6921 ft, testing by stages, to run formation tester.

SAN JOAQUIN COUNTY — Standard's Woods Com. 1, 24-1-5, td 4865 ft, formation tester recovered salt water. Texas Co.'s Lawrence-Stephens 1, 8-1-6, rur.

SOLANO COUNTY — Amerada Pet. Co.'s Marks 1, 24-4-2, td 4450 ft, gas well shut in; Marks 2, td 4475 ft, no production test, shut in; Triguerio 1, 24-4-2, rur.

SONOMA COUNTY—Stone & Youngberg's No. 1, 29-5-8, lcn.

STANISLAUS COUNTY — Coast Explor. Co.'s No. K-2, 30-4-9, td 3720 ft, to set formation tester 3830 ft.

SUTTER COUNTY—Buttes Oilfields' No. 4, 2-15-1, td 5800 ft, fsh.

TULARE COUNTY—E. P. Jennings' No. 1, 4-24-23, td 2707 ft, plugging; No. 2, 33-23-23, rigged and idle.

YOLO COUNTY—Standard's Hooper 1, 32-9-1, lcn.

MONTEREY COUNTY — Amil A. Anderson's No. 1, 15-24-14, dr hard sand 1093 ft. Shell Oil's Branch 1, 34-24-10, td 8994 ft, plug 8698 ft, swabbing; No. 2, td 8662 ft, plug 8045 ft, sd.

SAN LUIS OBISPO COUNTY—Aviation Oil Co.'s Britnall 1, 10-11-35, td 1930 ft, redr to 1200 ft, sd. Burkholder Oil Corp.'s Clay 1, 14-10-26, sd 3252 ft. R. A. Foster's McKee 1, 2-32-23, td 5087 ft, to plug and test. A. O. Lewis' Pecho 1, 34-30-10, td 2750 ft, to run 6⅝ in including 450 ft of perforated and test. Temblor Oil Co.'s No. 1, 22-31-21, td 1726 ft, to cement 8⅝ in on bottom, perforate and test. Oscar Willett's No. 1, 27-26-13, sd 300 ft.

SANTA BARBARA COUNTY—E. C. Arnolds-Apache 2, 8-8-33, dr blue shale 4756 ft. Hancock Oil Co.'s Los Alamos 2, 6-7-32, dr shale 1800 ft. Leora Oil Co.'s Fithian 1, 8-4-25, sd 1025 ft. Midwestern Oil Co.'s No. L-1, 28-4-27, td 2054 ft, plug 2002 ft, cemented 6⅝ in at 1980 ft, testing, blew small amount of fluid, to lower tubing. Nine Springs Oil Co.'s Brinkinhoff 11, 9-7-30, td 3300 ft, bailing. J. L. O'Donnell's No. 1, 21-10-34, lcn. 101 Oil Co.'s Hollister 1, 35-5-33, td 358 ft, to deepen. Pacific Western Oil Co.'s Hobbs 1, 21-10-34, td 1465 ft in shale, wocs 13 in at 1449 ft. S. E. D. Oil Co.'s No. 1, 27-10-34, dr shale 1473 ft. Tide Water Associated's Leonis 1, 3-6-33, rig. Union Oil's Russell 1, 21-10-34, td 4579 ft, wocs 8⅝ in at 4160 ft. United Western Oil Co.'s No. 1, 16-7-30, grade. Valley Oil Co.'s Chief 1, 20-9-34, td 2315 ft, on pump, co. Vista Del Mar Oil Co.'s Willis 1, 16-4-26, td 1604 ft, rebldg derrick, to dr deeper, formerly Mar Monte Oil Co., at Summerland.

SANTA CRUZ COUNTY—Elba Oil Co.'s Elba 1, 6-12-1, rig.

VENTURA COUNTY—Continental Oil Co.'s Casitas 1, 7-3-23, dr hard sandstone 7891 ft. El Rio Oils-Canada's El Rio 1, 6-1-21, td 3024 ft, ran liner, swabbed trace oil, mud and water, to pump. Speik Oil Co.'s Speik 1, 35-5-19, dr shale 2630 ft. Giovanni Vai's Scott 1, 4-4-21, dr shale 420 ft.

SOUTHERN CALIFORNIA

NEWHALL—Barnsdall Oil Co.'s Rancho San Francisco 1, 26-4-17, td 6472 ft, pumping 136 bbls 36.8 gravity clean oil, one inch choke, 795,000 cu ft gas; No. 2, rur. Holbrook Pet. Co.'s Newhall Land 1, 28-4-16, td 5365 ft, sdtr.

PICO CANYON—A. G. Burt's No. 1, 36-4-17, dr hard shale 1650 ft.

LYNWOOD—Calizoo Oil Co.'s Saulque 1, 9-3-13, dr sand and shale 5904 ft.

NORTH LONG BEACH—Geo. L. Clayton's Clayton 1, 32-3-12, sd 4895 ft.

FOX HILLS—Country Club Oil Co.'s No. 1, 19-2-14, sd 3020 ft.

ROSECRANS—Harmon-Fisher's Rosecrans 1, 19-3-13, rig.

HERMOSA BEACH—C. M. Henderson's No. 1, td 2804 ft, bailing.

DAVIDSON CITY—Hilldon Oil Co.'s Flood Control 1, 11-4-13, td 6105 ft, perforated 4¾ in at 5410 to 5435 ft, pumped at 250 bbl rate few hours and went to water.

WALNUT—Julian & Criswell's Langstaff 1, 5-2-9, td 1805 ft, redr at 1720 ft.

PALOS VERDES HILLS—McClaren Bros.' No. 1, 27-4-14, td 3970 ft, recemented 12½ in at 1077 ft, to redr.

MONTEREY PARK — Wales Pet. Co.'s Hogue 1, 26-1-11, dr sand and shale 1018 ft.

ORANGE COUNTY—Wm. Alexander's No. 1, 22-3-9, foundation. Mesa Oil Co.'s Mesa 1, 26-6-10, td 7865 ft, circulating mud, showing gas. Richfield Consolidated Oil Co.'s Todd 1, 22-3-9, dr shale 1490 ft. Signet Oil Co.'s Signet 1, 21-3-9, dr sand and shale 1503 ft. West American Oil Co.'s Irvine 1, 14-5-9, dr hard sand 4218 ft.

KANSAS

BARBER COUNTY—Pryor & Lockhart's Gant 1, cse¼ 7-31s-13w, circ 4332 ft. Barbara Oil Co.'s Holmes 1-27, cnw nw 27-33s-13w, dr 3520 ft. Colonial Oil Co.'s J. W. Blunk Estate 1, ne ne ne 13-24s-14w mim. W. I. Southern, Inc.'s Davis 3, se se ne 24-34s-15w, set 13-in csg 335 ft; lost circ at 800 ft.

BARTON COUNTY—Stanolind O & G Co.'s

ABBREVIATIONS

The following abbreviations, signs, etc., are used in completions and wildcat reports in THE OIL WEEKLY.

*—*dry hole abandoned well.*
‡—*salt water (completions).*
†—*junked and abandoned.*
¶—*million feet of gas.*
abd—*abandoned.*
bbls—*barrels.*
br—*building rig.*
b.s.—*basic sediment.*
csg—*casing.*
co—*cleaning out.*
dd—*drilling deeper.*
dk—*derrick.*
dr—*drilling.*
fsg—*fishing.*
ft—*feet.*
hfw—*hole full of water.*
in—*inches.*
lcn—*location.*
m—*milling.*
mim—*moving in materials.*
mit—*moving in tools.*
mot—*milling on tools.*
n, s, e, w—*north, south, east, west.*
oih—*oil in hole.*
owdd—*old well drilling deeper*
owpb—*old well plugging back.*
pb—*plugged back or plugging back.*
r—*reaming.*
rog—*rig on the ground.*
rur—*rigging up rotary tools.*
rust—*rigging up standard tools.*
sd—*shut down.*
sdtr—*sidetracking.*
sg—*show gas.*
si—*shut in.*
so—*show oil.*
so&g—*show oil and gas.*
spd—*spudding.*
sr—*straight reaming.*
sw—*salt water.*
td—*total depth.*
ur—*underreaming.*
wih—*water in the hole.*
wo—*workover.*
wocs—*waiting on cement to set.*
wosr—*waiting on standard rig.*

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AUDITS
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Struder 1, se se sw 26-16s-13w, testing. Republic Nat Gas Co. & Continental's Moeder 1, ne ne sw 25-17s-13w, dr 2785 ft. Sam Murphy's Beck 1, ne ne ne 17-17s-12w, spd & sd. S. E. Bailey's Hammeke 1, ne ne sw 12-18s-12w, ur 8-in csg 2395 ft. Shell Pet Corp.'s Schneider 1, cse/4 12-16s-14w, dr 2140 ft.

BUTLER COUNTY—Vickers Pet Co.'s Voth 1, cnl s/2 sw ne 32-24s-4e, td 3295 ft, D & A. Simpson Oil Co et al's Dennis 1-A, ne ne sw 15-26s-6e, fsg 915 ft.

CHASE COUNTY—Propp et al's Fromm 1, se se se 29-18s-9e, dr 2735 ft.

CHAUTAUQUA COUNTY—Robinson et al's Foster 1, sw sw sw 6-33s-12e, sd 1725 ft. C. L. Brosius et al's Garrett 1, nw sw nw 26-32s-11e, dr 425 ft. Buffington & Cohen's Hayes 1-A, se ne se 10-33s-13e, so & g 1617 ft; ur 6-in csg.

COWLEY COUNTY—Elmer Ash et al's Bolack 1, nw nw se 22-32s-6e, td 3260 ft, D & A. Murta & Wilson's Turner 1, ne ne nw 30-32s-6e, P. 351 bbls oil & est. 27 bbls watr, 24 hrs. Blair, Continental & McKnab's Miller 1, ne nw sw 14-32s-5e, dr 1835 ft. McCoy, Amerada & Wentz' Anderson 1, se nw ne 34-34s-6e, dr 1965 ft. Tom Palmer et al's Ogroskey 1, se se nw 31-32s-5e, dr 2275 ft. Trees Oil Co.'s Hornbeck 1, nw nw nw 5-33s-4e, set 15-in csg 710 ft. Tulsa Oil Co. et al's Dillon 1, nw nw ne 28-34s-3e, sd 1960 ft.

DECATUR COUNTY—Bruce et al's Newbold 1, cne sw 34-2s-28w, rig fell down.

EDWARDS COUNTY—Royal Pet. Co. et al's Krupp 1, nw nw se 18-24s-19w, td 5135 ft, D & A.

ELK COUNTY—Republic Nat Gas Co.'s Glasscock 1, se ne sw 19-31s-11e, dr 1373 ft, G. T. Berry's Zimmerman 1, sw ne se 15-30s-10e, dr 2031 ft.

ELLIS COUNTY—Empire's Samuelson 1, ne ne ne 31-11s-16w, woc. Mazda Oil Co.'s Henderson 1, sw sw ne 27-11s-18w, td 3587 ft, D & A. Bridgeport Mach et al's Froelick 1, nw nw se 4-13s-16w, Pot. P. 1154 bbls oil 24 hrs, Comp. Billings' Smith 1, se se nw 14-12s-16w, sg; 2 bbls oil and wtr per hr at 3185 ft. Earl Wakefield et al's Burnett 1, nw nw ne 1-11s-18w, dr 240 ft. Austin Drlg Co.'s Karlin 1, nw nw nw 13-12s-18w, rig. Winkler & Koch's Jensen 1, sw sw ne 3-13s-18w, mi rot; sd. Muth's Penney 1, nw nw ne se 29-14s-18w, sd 315 ft.

ELLSWORTH COUNTY—Orville Lee's Larkin 1, nw nw nw 15-16s-8w, ur 8-in csg 3073 ft.

GREENWOOD COUNTY—Ward McGinnis et al's Henley Estate 1, sw sw sw 25-25s-9e, woc 2171 ft. Western Kan O & R Co.'s Taylor 1, se se sw 6-27s-12e, sd 200 ft.

HAMILTON COUNTY—Barnsdall Oil Co. et al's Porter 1, sw sw ne 30-25s-41w, fsg 3694 ft.

HARPER COUNTY—Carter Oil Co et al's Seibert Estate 1, csw nw 4-34s-8w, pb 4628 ft, D & A.

HARVEY COUNTY—Simpson & Noble et al's Pierce 1, sw se ne 25-22s-2w, dr 2010 ft. Hollow & Bradley's Nevfeldt 1, ne se nw 17-22s-1w, cor 3590 ft.

KEARNEY COUNTY—J. L. Murphy's Masonic Home 1, cnw/4 1-26s-36w, fsg 519 ft.

McPHERSON COUNTY—Bradley Bros.' Barnholt 1, sw sw se 30-20s-5w, dr 3008 ft. Smith et al's Larson 1, nw nw sw 35-18s-5w, td 2882 ft; ur 8-inch csg. C. E. Ash Drlg Co.'s Broman 1, ne ne nw 19-17s-4w, ru. Fred C. Frank et al's Doles 1, se nw ne 12-19s-1w, set 12-in csg 1375 ft. Wamhoff et al's Nuse 1, se se sw 18-18s-4w, fsg.

MITCHELL COUNTY—Geo. Seidhoff et al's Greiss 1, sw sw se 16-8s-10w, ur 6-in csg 3410 ft.

NESS COUNTY—Newton Dev Co et al's Tenny 1, nw nw se 19-18s-25w, ur 6-in csg. Jones & Lane's Page Milling Co. 1, se se nw 36-18s-26w, ru.

PAWNEE COUNTY—Simpson Oil et al's Hewson 1, se se sw 13-21s-17w, set 12-in csg 750 ft; woc.

PRATT COUNTY—Atlantic, Empire & Skelly's Runyon 1, sw nw ne 11-27s-13w, dr 3590 ft.

RENO COUNTY—Clyde Pulse et al's Payne 1, sw nw ne 4-22s-7w, Pot. P. 156 bbls oil 24 hrs, comp. Carter, Continental & Empire's Bontrager 1, C-54, ce/2 ne ne 26-24s-5w, rur.

RICE COUNTY—L. E. Douglas' Coyne 1, ne se se 24-21s-8w, hfw 3768 ft; sdo. John Hanna et al's Fulton 1, nw nw ne 24-19s-6w, dr 3790 ft. Fred Phillips et al's Hubenett 1, sw ne sw 23-20s-8w, td 3366 ft; 2200 ft oih, 6 hrs. Union O & R Co. et al's Baker 1, sw sw ne 33-20s-6w, ur 8-in csg 3545 ft. Comanche Oil Co.'s Cramm 1, sw sw se 15-19s-9w, set 6-in csg 2878 ft. Hipple et al's Wernett 1, ne ne nw 11-20s-6w, dr 2695 ft. Stanolind O & G Co.'s Mooney 1, ne ne sw 5-19s-10w, cor 3415 ft. Skiles et al's Helmer 1, nw nw ne 7-19s-8w, set 8-in csg 2450 ft; co. Witt et al's Fair 1, ne se se 4-22s-8w, sd. Skiles et al's Campbell 1, se se ne 28-19s-9w, ru. H. V. Holland et al's Brothers 1, se se se 12-21s-7w, ru. Gillespie et al's Strong 1, ne ne nw 9-18s-8w, mim. Bell O & G and Shell Pet Corp's Wilkens 1, nw nw ne 23-21s-9w, rur.

ROOKS COUNTY—Lester & Dean's Burtt 1, se se ne 29-10s-20w, fsg 3818 ft. Jones Bros Drlg Co.'s Wiss 1, nw nw nw 8-10s-8w, td 3819 ft, D & A. Brunson Drlg Co. et al's Casey 1, se se ne 22-9s-16w, ur 6-in csg. C. R. Craft et al's Ziegler 1, ne ne sw 8-10s-16w, rust. S. C. Hoel et al's Ives 1, sw sw ne 11-7s-18w, dr 1785 ft. W. W. Kiskadden et al's Ham 1, sw sw nw 25-7s-19w, rig. Graham et al's Fike 1, sw sw sw 9-9s-17w, dr 3326 ft.

RUSH COUNTY—S. A. Murphy et al's Roth 1, nw nw sw 21-16s-18w, dr by 2635 ft. Duee & Brouk's Lebsack 1, se se ne 13-16s-16w, set 8-in csg 2800 ft. Westgate-Greenland Oil Co. et al's Greenwalt 1, nw nw ne 19-19s-16w, fsg 4792 ft. Carter Oil Co. et al's Prosch 1, cel n½ se 21-18s-16w, dr 2885 ft. Wakefield et al's Zimmerman 1, se se sw 7-16s-18w, lcn.

RUSSELL COUNTY—S. A. Murphy et al's Deines 1, se se sw 36-15s-15w, td 3479 ft. Goldstein & Vernon O&G Co.'s Steinert Estate 1, ne se sw 34-15s-15w, dr 2675 ft. Aylward et al's Jones 1, se se nw 22-14s-13w, sdo 3180 ft. Billings et al's Boxberger 1, ne ne se 21-14s-14w, dr 1955 ft.

SCOTT COUNTY—Olson Drlg. Co. et al's Nolan 1, nw nw ne 13-19s-33w, fsg 4777 ft.

SEDGWICK COUNTY—Roxanna Drlg. Co. et al's Woodman 1, sw nw sw 26-26s-1w, sd 2469 ft. E. B. Shawver's Furman 1, sw ne se 24-29s-3w, ur 12-in csg 1494 ft. Union O&R et al's Howell 1, sw sw sw 6-29s-1e, br.

STAFFORD COUNTY — Rosespring Drlg. Co. et al's Gray 1, nw nw nw 11-24s-13w, woc 285 ft. Atlantic's Kachelman 1, se nw nw 13-25s-14w, dr 3160 ft.

SUMNER COUNTY — The Texas Co.'s Harper 1, ne sw se 9-30s-3w, pb 3835 ft. Glimac Oil Co. et al's Proud 1, sw se se 33-30s-1w, rust 3632 ft. W. M. McKnab's Blair 1, sw sw sw 7-30s-1e, rig. Hapenny & Green's Evers 1, se se ne 27-31s-2e, td 508 ft, abd. Faulkner et al's Nevitt 1, ne nw ne 36-32s-6e, P. only water in 12 hrs. John Burton's Springate 1, ne

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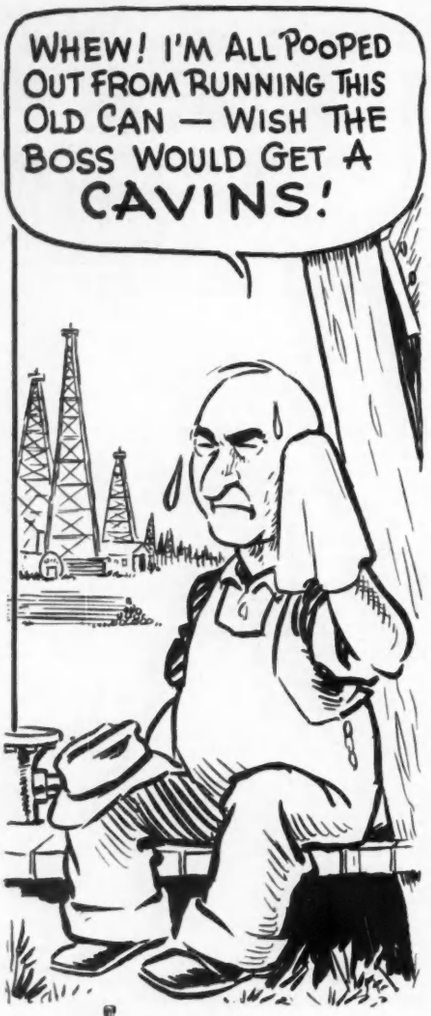

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ne sw 30-33s-2e, sd 91 ft. National Ref. Co.'s Schwantes 1, nw sw ne 16-32s-3e, lcn.

TREGO COUNTY—W. I. Southern's Latimer 1, nw nw se 19-15s-22w, hfw 3835 ft, dr 3860 ft. Turner et al's Rogers 1, c sw¼ 3-15s-23w, rot rig.

WOODSON COUNTY — Morris et al's Koening 1, se se nw 35-24s-15e, sd 700 ft.

SOUTH LOUISIANA

ACADIA PARISH—Humble's Federal Land Bank 1, North Crowley prospect, 34-8s-1e, dr ahead below 7722 ft. John Mayo et al's Bank of Commerce & Trust 1, e of Tepetate field, 19-7s-1e, no report.

AVOYELLES PARISH—Coastal Minerals Dev. Co.'s Purdy Haas 1, 25-2n-3e, ru.

CAMERON PARISH—Humble's Bel Hanszen 1, Hanszen prospect, 5-12s-6w, dr shale 7377 ft. Pure's State Mallard Bay 2, Mallard Bay prospect, 14-13s-3w, driving piling. Superior's State Gulf of Mexico 1, in Gulf of Mexico, 4-15s-8w, driving piling.

EAST FELICIANA PARISH—Cavalier Oil Co.'s Bickman 1, Port Hudson area, 88-4s-1w, abn 4500 ft; same operator's Elliott 1, 3-8s-2e, cutting and pulling 6300 ft. G. C. Koch et al's Andrews 1, Clinton area, 89-2s-3e, sd 1112 ft.

EAST BATON ROUGE PARISH—Louisiana Crusader Oil Co.'s State 2, University block, 67-7s-1e, ru.

IBERIA PARISH—Hamil & Smith's Dave Baez 1, Patoutville area, 35-12s-7e, dr shale 7898 ft. Jefferson Lake Oil Co.'s Lake Peigneur 414, Jefferson Island dome, 12s-5e, dr shale 6455 ft.

JEFFERSON DAVIS PARISH — Louisiana Crusaders Oil Co.'s Langley 1, Fenton area, 36-7s-5w, taking 20-foot core at 8985 ft. Stanolind's Calcasieu National Bank B-2, China prospect, 28-7s-3w, dr shale 7846 ft; same operator's Calcasieu National Bank 2, South Jennings area, 10-10s-3w, dr shale 9034 ft. Union Sulphur & Shell's T. R. S. Farms 1, South Roanoke area, 23-10s-4w, dr shale 6156 ft.

LAFOURCHE PARISH — Fohs Oil Co.'s State Long Lake 1, Bourg prospect, 65-17s-19e, will comp. June 22. Gulf's State 3, sw of Marchland prospect, 36-23s-21e, mim.

PLAQUEMINES PARISH — Gulf's State Quarantine Bay "QQ" 3, 17-19s-17e, driving piling. Tide Water's Manhatten Fruit Co. 3, Venice dome, dr shale 4996 ft.

ST BERNARD PARISH—Gulf's Lake Lery 2, Lake Lery prospect, 28-14s-14e, dr shale 6476 ft. Southern Sulphur Co.'s State 2, Lake Borgne, 38-14s-15e, dr shale 3212 ft.

ST. CHARLES PARISH—Amerada-Louisiana Land & Exploration Co.'s State Bayou Des Allemands 1, Black Prince Island prospect, 13-15s-20e, woc 7124 ft.

ST. LANDRY PARISH—Gulf's Haas-Hirsch 1, Krotz Springs area, 12-6s-7e, dr shale 2849 ft.

ST. MARTIN PARISH—Joe E. Lilly et al's Martin 1, Section 28 prospect, 32-10s-7e, sd 4450 ft. Texas Co.'s State Mongoulio 3. Lake Mongoulio prospect, 14-10s-9e, coring 7794 ft.

ST. MARY PARISH — Texas Co.'s State Bateman Bay 1, Morgan City prospect, 21-16s-12e, dr shale 10,445 ft; same operator's Horseshoe Bayou 1, on Horseshoe Bayou, 40-17s-9e, trying to get back in old hole at 12,261 ft.

VERMILION PARISH — Continental's Brookshire 1, Abbeville area, 66-12s-3e, dr shale 5757 ft.

MICHIGAN

ALLEGAN COUNTY — Champion Dev.'s Skorosky 1, sec 9-1n-12w, lcn. Flanigan & Kehlet's Clair 1, sec 29-1n-13w, mim.

GLADWIN COUNTY—C. E. McLaughlin's Simmone 1, sw sw sw, sec 23, dr 400 ft. Dibble Brother's Kimble 1, sec 16-13n-1e, dr 700 ft. W. H. Thourby's Kliz 1, sec 23, lcn. Union Oil et al's Steel 1, nw nw se, sec 22-20n-1e, lcn.

GRATIOT COUNTY—Sam Siegel's Kerr 1, sec 36-10n-1w, sd 2550 ft. H. B. Cowdry's De-Vuyst 1, sec 11-10n-2w, dr 300 ft. Gulf Ref. Co.'s Lyon 1, sec 26-9n-2w, dr 2600 ft.

NEWAYGO COUNTY—M. R. Schemahorn's Cain 1, sec 24-12n-11w, lcn. Muskegon Dev. Co.'s Carlson 1, sec 9-16n-12w, dr 930 ft.

OTSEGO COUNTY—Dion Geraldine's Fee 1, sec 34-30n-3w, lcn. Harley William's Raae 1, sec 15-30n-1w, sd 2250 ft. Barton & William's Yuill 1, sec 9-32n-3w, lcn.

SAGINAW COUNTY — Mid West Pet.'s Shields 1, sec 5-11n-2e, testing so 2128 ft, Berea sand 2118 ft. Darke Brothers' Fee 1, sec 11-11n-2e, dr 1050 ft. Doran & Hillard's Dobs 1, sec 33-11n-1e, spd.

MISCELLANEOUS COUNTIES: Cass—L. T. Barber's Beebe 1, sec 3-5s-15w, sd 1250 ft. Cheboygan—Bert Grancis, Tr.'s Campbell 1, sec 7-34n-1w, lcn. Emmet—Cheboygan Oil Co.'s Barney 1, sec 12-35n-4w, rig. Huron—C. W. Teater's Haldane 1, sec 30-16n-12e, lcn. Missaukee—Rex Oil Co.'s Meekoff 1, sec 30-21n-6w, fsg 3075 ft.

OKLAHOMA

ALFALFA COUNTY—Olson Drlg. Co. et al's Acre 1, csw ne 14-24n-11w, fsg 3700 ft.

BECKHAM COUNTY—Mid-American Oil Co.'s Biscoe 1-A, sw sw sw 28-8n-22w, recem der corners. Carter Oil Co.'s Porter 1, csw sw 36-10n-25w, td 3635 ft, D&A. Carter's Bingham 1, ne ne ne 31-8n-26w, sd 2224 ft.

CADDO COUNTY—Clyde Becker et al's Pharris 1, cse se nw 24-6n-12w, dr 3500 ft.

CARTER COUNTY — Shell Pet. Corp.'s Smith 1, cnw se ne 30-5s-1e, dr 2070 ft.

CLEVELAND COUNTY — Hollenback's Stinson 1, nw nw ne 17-9n-2w, dr 7008 ft.

COMANCHE COUNTY — C. V. Morris' Young 1, se ne se 24-3n-10w, dr 1000 ft.

GARFIELD COUNTY—Ohio Oil Co.'s State 1, sw sw sw 13-23n-2w, set 7-in csg 4905 ft, woc.

GARVIN COUNTY—Carter Oil Co.'s Potts 1, ce½ se nw 36-1n-3w, bldg der & mit.

GRADY COUNTY—Gulf Oil Corp's Thomas 1, sw nw nw 14-4n-5w, tools on lcn.

GRANT COUNTY—Carter Oil Co et al's Crisman 1, nw sw nw 16-25n-3w, dr 728 ft. Carter et al's Kolarik 1, csl s½ sw 4-26n-5w, dr 1759 ft.

HASKELL COUNTY—Continental Oil Co.'s Anderson 1, sw se ne 33-8n-20e, dr 4735 ft.

HUGHES COUNTY—Cap Rock Oil Co.'s Park 1, c sw se 34-7n-8e, dr 4510 ft. Chas. Thornton's Eason 1, ne ne nw 7-9n-11e, dr 2645 ft. E. H. Moore's Buck 1, nw sw sw 21-8n-10e, td 2756 ft; 5,600,000 cf gas.

JACKSON COUNTY—Ace Gutowsky's Howard 1, sw sw nw 10-3n-19w, dr 680 ft. Ace Gutowsky's Lee 1, nw nw se 36-2n-19w, lcn.

JOHNSTON COUNTY—Neff & Godfrey's Chapman 1, csw se sw 36-4s-4e, lcn.

KAY COUNTY—Higdon et al's Nieman 1, ne nw ne 9-26n-3e, fsg.

KIOWA COUNTY—Kiowa Oil Corp.'s Finder 1, csw ne 4-6n-20w, dr 653 ft. Argus Pet Co.'s Osbourne 1, nw nw ne 9-7n-16w, P. 7 bbls oil; Comp. Ace Gutowsky's Booker 1, nw nw nw 33-2n-18w, dr 300 ft.

LATIMER COUNTY—Clark Drlg Co. et al's Wilson 1, cse se 15-5n-18e, dr 6075 ft.

LINCOLN COUNTY—Exchange Drlg Co.'s Dowell 1, se se nw 10-14n-6e, td 3065 ft; to shoot.

LOGAN COUNTY — Helmerich & Payne et al's Randall 1, sw sw ne 24-16n-1w, td 5552 ft, D & A. Eason Oil Co.'s Sisters 1, sw sw sw 24-17n-1w, td 5563 ft, D & A.

LOVE COUNTY—Sinclair Prairie's Stockton 1, se se sw 26-6s-2w, dr plugs 6624 ft.

MAJOR COUNTY—Ed V. Parsons et al's Patzkowsky 1, cnw/4 10-20n-11w, Lcn.

McCURTAIN COUNTY—Wilcox O & G Co.'s No. 1, sw se sw 30-2s-27e, dr 136 ft.

MURRAY COUNTY—Russell's Fee 1, se nw se 9-2s-3e, td 2273 ft, D & A. O. O. Owens' Fryer 1, ne se ne 34-1s-3e, dr 2319 ft.

NOBLE COUNTY—Lincoln Oil Co. et al's Neil 1-A, ne ne ne 15-23n-2w, fsg 4826 ft. Summitt Drlg Co. et al's Dolezal 1, se se sw 8-22n-1w, td 5254 ft; circ oil. Stanolind & Amerada's Johnson 1, nw nw se 4-20n-2w, dr 4070 ft.

OKFUSKEE COUNTY—Riverland Oil Co.'s Board 1, ne nw se 10-13n-10e, dr 700 ft.

OKLAHOMA COUNTY—Sunray Oil Co.'s Dickson 1, nw nw nw 17-11n-1e, dr 5560 ft.

OSAGE COUNTY—Mid-Co Oil Corp.'s No. 1, se se sw 22-23n-6e, dr 1956 ft.

PAWNEE COUNTY—Carter Oil Co.'s Wells 1, ce½ se nw 30-23n-5e, dr 882 ft.

PAYNE COUNTY—H. F. Young's Jenkins 1, se ne se 4-17n-3e, dr 4595 ft. Riddle's Van Zandt 1, nw nw se 16-18n-3e, dr 2300 ft.

PONTOTOC COUNTY—Southern Oil Co.'s Young 1, ne ne se 17-3n-7e, sd 150 ft. Roodhouse et al's Booth 1, se nw se 20-2n-6e, cor 4045-54 ft; dry. Clark Drlg Co. & Delaney's Richardson 1, se se sw 30-4n-8e, dr 2470 ft. Sandbach et al's Whittaker 1, nw ne se 31-4n-6e, td 3754 ft. Boettcher O & G Co.'s Cann 1, se nw ne 25-4n-7e, dr 1880 ft. Norbla Oil Co.'s Kennedy 1, se se ne 13-2n-5e, dr 500 ft. Union Dev Co.'s Abbott 1, sw nw ne 34-3n-6e, dr 310 ft.

POTTAWATOMIE COUNTY—Stanolind & Amerada's Billington 1-B, sw se sw 32-9n-3e, dr 5130 ft. Richborn Oil Co.'s Fidler 1, ne ne nw 9-5n-5e, sd. Atlantic Ref Co.'s Dooley 1, se se sw 9-11n-5e, dr 3374 ft. Mid-Continent Pet Corp. et al's Ne-Thah-Pea-Se 1, se se ne 24-11n-4e, dr 2410 ft.

PUSHMATAHA COUNTY—Erle Halliburton et al's Bogwell 1, sw ne ne 30-3s-15e, dr 2532 ft.

SEMINOLE COUNTY—Mid-Continent Pet Corp.'s Schrupp 1, sw nw sw 24-5n-6e, dr 1940 ft.

STEPHENS COUNTY—Carter Oil Co. et al's Harley 1, cne ne 24-2s-4w, dr 5960 ft. Wm. Angle et al's Sid Lang 1, sw sw ne 24-1n-7w, dr 4690 ft. Coline Oil Co.'s Johnson 1, csw se ne 1-2n-8w, td 6500 ft; sd for wtr. Ed Parsons et al's Blake 1, csw nw 22-2n-8w, td 2542

ft; straighten hole. Helmerich & Payne's Graham 1, csw sw ne 12-1n-5w, co to 5015 ft; set 6-in csg 4250 ft; woc. Gavin & Kolb's Bond 1, cwl nw ne 36-2s-7w, dr 1356 ft.

TEXAS COUNTY—Cabot Carbon Co.'s Calvert 1, C Sec 14-3n-16ecm, td 2649 ft; flo 10,200,000 cf gas, comp. Cabot Carbon Co.'s Castro 1, cne¼ 19-3n-17ecm, td 2720 ft, flo 4,000,000 cf gas, Comp. Missouri Valley Gas Corp.'s Fitzgerald 1, C Sec 17-6n-14ecm, td 2828 ft, flo 8,000,000 cf gas, Comp.

TILLMAN COUNTY—I.T.I.O. Co. et al's Hatler 1, csw ne 32-2s-17w, pumping. Cavens et al's Southerland 1, sw sw nw 35-4s-16w, ru & sd.

WASHITA COUNTY—John Koberg's Harms 1, cnw nw ne 6-10n-16w, woc 340 ft.

EAST TEXAS

ANDERSON COUNTY—Barnsdall Oil Co.'s H. C. Swanson 1 (243-ac), Richard Duty sur, ¼ mi ne Jarvis, elev 330 ft, Pecan chalk 3314-3630 ft, Austin chalk 4120-4264 ft, top Woodbine 4406 ft, top Georgetown lime 5215 ft, cem 9-in cas 5245 ft and sd. Roeser-Pendleton, Inc.'s V. W. Bowyer 3 (200-ac), E. Ritter sur, Cayuga field, elev 317 ft, top Woodbine 3991 ft, top Georgetown 4749 ft, top Paluxy series 5929 ft, top Glen Rose 6166 ft, top anhydrite 7110 ft, showed oil and gas on dst at 7658 ft, td 7679 ft, run cas. Tide Water Associated-Seaboard Oil Corp.'s Monnig Bros. 7 (3806.82-ac), S. Sanchez sur No. 1-11, Long Lake field, elev 233 ft, top Woodbine 5273 ft (salt water), top Georgetown 5904 ft,top Paluxy 7010 ft, top 1st Glen Rose 7205 ft, top 1st anhydrite 8333 ft, massive anhydrite 8643-8748 ft, top Travis Peak 9930 ft, pb fr 9971 ft to 5260 ft, tested dry in Woodbine and Sub-Clarksville, dry and abd.

BOWIE COUNTY—Fay T. Chew and Brassett's B. Barkman 1 (90-ac), J. W. Parkman sur, 2½ mi n Leary, elev 312 ft, dr 2545 ft. Ferguson & Hill's A. Y. Breckenridge 1 (412-ac), Nancy Dycus sur 4 mi w Texarkana, top Annona chalk 1308 ft, top Blossom sand 2063 ft, sd 2740 ft. Sutton & Hawkins' N. M. McDuffey-Harris 1 (389.45-ac), John Ball sur, 3 mi se New Boston, elev 333 ft, top Georgetown lime 2847 ft, top Paluxy 3350 ft, top anhydrite stringer 4495 ft, massive anhydrite 4640-4825 ft, td 4924 ft, pb to 4724 ft, drl by 5300 ft. Woodley & Bentley's J. D. Lumpkin 1 (245-ac), John McDermott sur, 1¼ mi sw of Dalby Springs, elev 290 ft, Annona chalk 1665-2090 ft, pb fr 4404 ft to 1300 ft, dr by junk, dr 4110 ft.

CHEROKEE COUNTY—Stoco Oil Co.-Joe M. Burnham's E. B. Parks 1 (17 2/3-ac), J. T. Cook sur, 4 mi sw Rusk, elev 417 ft, Pecan chalk 3939-4330 ft, Austin chalk 4825-5058 ft, top Woodbine series 5060 ft, dry and abd in Georgetown lime 5207-5213 ft.

COLLIN COUNTY—Foster Jones et al's Ann Sherley 1 (54.44-ac), Gwynn Morrison sur, ½ mi e Anna, top Paluxy 2123 ft, top 1st anhydrite 2725 ft, sd 3005 ft.

DELTA COUNTY—F. J. Estes et al's W. S. McGee 1 (207-ac), J. G. Oliver sur, 2 mi sw Klondike, elev 449 ft, top Georgetown 3305 ft, sd 4001 ft.

ELLIS COUNTY—Gigantic Oil Co., Inc.'s C. H. Sullivan 11 (90-2/3-ac), Simon Garcia sur, 4 mi n Frost, rig.

FALLS COUNTY—J. Edward Mills et al's Sam Grucholski 1 (40-ac), Dennis Herold sur, 5 mi sw Kosse, elev 521 ft, top Edwards 3867 ft, top upper Glen Rose 4074 ft, td 5526 ft, cem 5-3/16-in cas 5374 ft, gun-perf pipe 5284½-88½ ft, flowed water, will abd.

FREESTONE COUNTY—C. F. Lytle et al's Roy Simmons 1 (28.83-ac), R. B. Longbotham sur, ½ mi s Wortham, Trinity test for depleted field, td 4000 ft, pb and perf cas and flowed water. C. E. Rossiter et al's J. P. Fulton 1 (441-ac), J. P. Fulton sur, sd 956 ft. L. R. Stroud & C. A. Buzzard's Sneed 1, R. D. Sloan sur, 6 mi ne Fairfield, sd 341 ft.

HENDERSON COUNTY—Wm. McDougall, Tr. et al's Trinity Farm Securities Co.-R. M. Manning 1 (200-ac), H&TC Ry. sur, 4 mi s Malakoff, lcn. R. J. Paschall & H. M. Wilson's H. M. Wilson 1 (943-ac), Thomas Caro sur, sd 2800 ft. Tidewater Associated-Seaboard & Humble's McElreath-Suggett 2-C (149-ac), W. P. Wyche sur, 1½ mi nw Opelika, elev 452 ft, Pecan chalk 2638-2788 ft, top Austin chalk 3750 ft, dr 3950 ft.

HOPKINS COUNTY—Carpenter Oil Corp.'s C. D. Gillis 1 (53¾-ac), W. A. Smith sur, 2¾ mi e Cumby, elev 593 ft, top Pecan chalk 1780 ft, sd 3715 ft. Housh & Thompson, Inc., E. L. Ashcroft & Bob Nelson's Spencer 1 (81-ac), G. Linceum sur, 5½ mi sw Sulphur Bluff field, elev 494 ft, Pecan chalk 1625-1750 ft, dr 2500 ft.

HOUSTON COUNTY — American Liberty Oil Co. et al's W. L. Moody 1 (55-ac), S. C. Parker sur, 2½ mi nw Grapeland, elev 451 ft, Pecan chalk 4549-4847 ft, Austin chalk 5576-5886 ft, top Woodbine 5988 ft, showed gas and distillate 5997-6011 ft on drill stem test.

HUNT COUNTY—Stanolind O&G Co. et al's Jessie P. Hawks 1 (110-ac), Robt. Ragsdale sur, 1½ mi w Campbell, elev 566 ft, cut thru fault 1275 ft, top Woodbine 2880 ft, top George-

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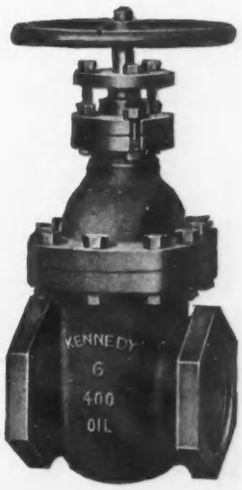

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town lime 3730 ft, top Paluxy series 4388 ft, top Glen Rose 4819 ft, top anhydrite 5335 ft, base anhydrite 5560 ft, top Travis Peak 5965 ft, co 6548 ft to deepen.

KAUFMAN COUNTY—J. M. Scott & J. B. Woodside's Wood & Temple Nash 1 (80-ac), Juan Cortez sur, 1 mi e Scurry, elev 401 ft, Gober chalk 1300-1400 ft, top Woodbine 2270 ft, top Georgetown lime 2849 ft, sd 2920 ft.

LAMAR COUNTY—Blackman & H. W. McGee's J. M. Duck 1 (75-ac), J. C. Lamb sur, near Powderly, lcn. A. W. Walker, Tr. et al's R. L. Rose 1 (160-ac), A. N. Nowell sur, dk.

LEON COUNTY—H. M. Ogg et al's O. Wiley 1 (144-ac), E. Devinney sur, 1 mi w Buffalo, sd 2000 ft.

LIMESTONE COUNTY—Pure Oil Co.'s W. B. Kendrick 16-T (96-ac), 3 mi w Mexia, Mexia field, Trinity test, elev 508 ft, Austin chalk 2210-2522 ft. top Woodbine 2896 ft, dr 4990 ft. A. W. Phillips & J. Johnson's E. M. Wright 1 (136½-ac), A. Varella-M. Herrin sur, 4 mi ne Groesbeck, elev 415 ft, Pecan chalk 2450-2520 ft, Austin chalk 2720-3003 ft, td 3695 ft, dry and abd.

RUSK COUNTY—Barnett Pet. Corp (was John G. Mayo et al's) Harrison-S. C. Sanford 1 (161-ac), Wm. A. Corder sur, 10 mi e Mount Enterprise, Trinity test, elev 252 ft, Pecan chalk 2260-2650 ft, dr 3640 ft. General Crude Oil Co. et al's Bivens Bros. 1 (500-ac), R. Williamson sur, rur. John W. Merritt et al's J. M. Tipps 1 (250-ac), Thos. Uzzell sur, 3½ mi n New Salem, elev 367 ft, dr 1130 ft. Nivla Oil Corp.'s Citizens Nat'l. Bank 1 (50-ac), M. D. Carmel sur, 2½ mi se Henderson, lcn. J. W. Shipman et al's Citizens Nat'l. Bank-L. T. Burton 1 (125-ac), J. J. Y'Barbo sur, 4 mi ne Henderson, elev 432 ft, base Georgetown lime 3676 ft, dr 4195 ft.

SMITH COUNTY—Thos. W. Doswell et al's Allred Bros. 1 (40-ac), B. Lafferty sur, 3½ mi n Troup, elev 444 ft, Pecan chalk 2888-3280 ft, Austin chalk 3778-3965 ft, top Woodbine 3965 ft, dry and abd 4212 ft.

TITUS COUNTY—J. N. Buchanan and G. E. McGrede's Mrs. Cal Russell 1, J. M. G. Rutherford sur 8 mi w Dangerfield, mim. Magnolia Pet. Co.'s J. A. Chapman 2 (341¼-ac), Geo. Dyer sur, lower Trinity test for east edge Talco field, elev 329 ft, trace oil in Paluxy 4232 ft, dr shale and shells 5310 ft.

UPSHUR COUNTY—F. W. Maddox et al's S. T. Buie 1 (158-ac), Jas. M. Dunn sur, 1½ mi n Jamestown, elev 298 ft, Pecan chalk 2405-2940 ft, top Austin chalk 3629 ft, top Woodbine 3717 ft, td 3725 ft, testing.

VAN ZANDT COUNTY—Humble O&R Co.'s L. K. Riggs 1-A (74.2-ac), Wm. Daniel sur, ne edge Van field, Trinity test, elev 463 ft, Pecan chalk 1964-2090 ft, Austin chalk 2805-3048 ft, top Georgetown lime 3675 ft, dr 4450 ft. Glenn et al's E. Core 1, H. Ball sur, 3 mi n Edom, dk. Spratt Oil Co.(was Stroud & E. N. Lowe's) P. L. McNeill 1 (104-ac), J. W. Guest sur, 4 mi n Ben Wheeler, elev 510 ft, sd 684 ft.

SOUTH TEXAS

LAREDO DISTRICT

DUVAL COUNTY—Government Wells Oil Co., Inc.'s H. A. Lundell 1, sec 140, cored cap 1514-15 ft, oil sand 1515-30 ft and ran test 1513-20 ft, developed 260 lbs pressure ⅜ in, top choke and ⅜ in. btm ch 7 min, set csg 1513 ft, open new field sand believed to be 40 ft above Cole, td 1520 ft, comp as gasser. Hiawatha Oil & Gas Co.'s M. M. Miller 2, blk 24, Ball subd, ru; Southland Life Ins. 3, sec 15, lcn. Kepley Prod. Co.'s Clara Driscoll Sevier 2, sec 71, dr 3220 ft. King Drilling Co.'s Atlee Parr 1, dr 3075 ft. Magnolia Pet. Co.'s F. Weil et al 1, sur 565, dr sh 2504 ft. Navarro Oil Co.'s E. M. Rossi 1, sec 11, lcn. Penn-Palangana Oil Co. et al's C. K. Gravis 1, sec 250, dr 4500 ft. Reliance Oil & Roy. Co.'s D. Ruiz Est. 2, C. & M. Ry. sur No. 125, comp 2649 ft, 35 bbl per day on pump, 7 in csg at 2636 ft, top sand. Reynosa Oil Co. et al's F. G. Wilson 1, blk 9, Sweden subd, comp 4775 ft, flowed 96 bbls 12 hrs 5/32 in. ch, tp 525 lbs, cp 1020 lbs. Standard Oil Co. of Kansas' Mabel Rossi 1, blk 10 Sweden subd, moved rig to new lcn; Atlee Parr 1, 80-acre lse, sp. Trahan & Tuttle's J. C. Megerle 1, sur 245, stdg 1100 ft. Geo. V. Viteri et al's Emilio E. Cadena 1, blk 5, G. Stewart O&G subd, abnd 6636 ft.

JIM HOGG COUNTY—Magnolia Pet. Co.'s Merchants Bank 43, sec 151, dr 1250 ft.

McMULLEN COUNTY—Edwards & Zoch's Two Rivers Ranch 1, sec 60, ru. Harrison and Danvers' J. A. Jungman 1, M. Hely sur, abnd 1270 ft. Harvey & Henderson's Nueces Land & Livestock Co. 1, sec 105, still wor. W. L. Hinds' Douglas W. Rhodes 1, sec 54, H. Nadler sur, dr below 400 ft. W. P. Howard's B. C. Claunch 8, M. Hely sur, fsg at 1120 ft. Howell Oil Co.'s J. H. Martin Hrs. 1, sur No. 213, still sd at 2832 ft. Edwin M. Jones' Harry Ezzell 5, H. M. Brewer sur No. 7, sec 39, wor; Harry Ezzell 6, C. Q. Ragland sur, ru. J. T. Lanier's E. R. Hagist 1, sur 481, sd 450 ft. National Pet. Corp.'s Charles T. Lark et al 3-C, lot 128, E. W. B. Scrugham sur, sand and sandy sh 960-78 ft, set 7 in csg 916 ft, comp for 50 bbls per day on pump, td 978 ft. C. C. Shumway et al's Shiner Ranch 10, sec 51, dr 750 ft.

STARR COUNTY — Calderoni's-James'-Follette's Francisco Rodriguez 1, sh 56, por 80, J. of Camargo, sd at 150 ft. Carter & Stiernberg's Quirino Vela 1, por 85, dr 840 ft. John H. Clopton et al's Dionicio Tiferina 4, blk 12, sh 14-C, Por. 80, J. of Camargo, sd for heavier rig, td 1630 ft. Cook, Maris' Arnold's Starr County Cattle Co. 2, blk 23, Cook, Maris, Arnold sur, por 89, sd for orders, td 2745 ft. W. F. Dolgener et al's Y. Garcia de Garcia 1, por 71, J. of Mier, stdg 402 ft. Henry Mode et al's Mrs. Kelsey Bass 1, blk 7, por 86 and 87, Kelsey Bass subd, dr ahead 2300 ft. Moss & Heard's S. B. Ricaby 4, por 83, dr 426 ft. K. E. Merren's Starr County Cattle Co. 1-A, blk 34 Jefferies & Lambeth subd, well sanded up while si for repairs to Xmas Tree, swabbing through tubing 5418 ft. The Texas Co.'s A. V. Guerra 6-A, por 67, J. of Mier, ru. Transwestern Oil Co. et al's T. B. Slick Est. 2, sec 527, coring sndy sh and sh 5781 ft, dst 5727-60 ft, show some gas 10 min, now in Vicksburg.

WEBB COUNTY—Mills Bennett Prod. Co.'s M. D. Slator 3, blk 92, Slator subd of Borrego gr, D&A at 1551 ft. Bolling & Coffey's A. Villareal 1, blk 17, sur 768, abnd 2550 ft. C. C. Bonner et al's Cuellar Bros. 1, sh 4, Cuellar gr, abnd 3517 ft. Dolores Oil Co.'s Emma Adami 1, sur 15, abnd 1501 ft. Eugene Garner, Jr.'s R. Saldivar 2, sur 657, stdg 1000 ft. Ina Oil & Ref. Co.-F. M. Shaver's W. E. Trafton 1, sur 281, part of tools on lse stdg (?). O. W. Killam's A. M. Bruni 52, sur 8, Foltz subd, Mariano Arispe gr, comp 3433 ft, flowed 135 bbls per day ¼ in ch, cp 100 lbs., tp 25 lbs; A. M. Bruni Est. 53, sec 8, blk 19, testing gas sand 3418-25 ft, oil sand 3425-29 ft, cap 3429-31 ft, oil sand 3431-38 ft, td 3438 ft; F. Perez 1, sur 1007, dr 1700 ft. J. W. Magee's E. Garcia 1, blk 21, Henry James subd, sp and sd, td 40 ft. Howard Nessley's A. M. Bruni Est. 3, sur 449, lcn for Cole sand test. Perkins, Cullum & Achning's Louisa R. de Garza 1, sur 711, ru. Randon Oil Co.'s Joe C. Palmer 1, sur 474, prep to sp.

ZAPATA COUNTY—Allison & Abran's S. Vela 1, sur 259, stdg 550 ft. Gilcrease Oil Co.'s A. Trevino 2, sec 8 Bode subd. and replat parts, por. 2 and 3, woc at 30 ft. O. W. Killam's A. M. Bruni Est. 1, blk 83, El Ranchito Pasture, E. V. Borrego gr, sp. H. Q. Lewis' S. Benavides 1, blk 39, Fansler & O'Hern subd, Villa gr, ran electric formation tester, abnd 2203 ft. R. L. Martin's S. Vela 1, blk 44, sh 2, El Grullo gr, lcn; S. Vela 1, blk 77, sh 4, El Grullo gr, lcn. J. O. Sheffield's C. H. Buck 1, blk 15, J. O. Sheffield subd, sur 273, dr 1800 ft. Starr Dev. Co.'s Paula V. de Garza 1, C. A. Douglas subd, Zorro Ranch, Zorro Pasture, Comitas gr, ru.

SAN ANTONIO DISTRICT

BASTROP COUNTY—Sure Oil Co.'s C. Y. Powell 1, J. G. Welchmeyer sur, top Serpentine 2112 ft, hard and dry, abnd 2306 ft.

BEXAR COUNTY—Algra Oil Co.'s Edward G. Peters 1, Miguel Gotari sur, stky shale 815 ft, repairing rotary, will pull 6 in csg, condition hole then dr ahead to Austin chalk. American Gas Co.'s Oliver 5, M. F. Rodriguez sur, dr ahead 3450 ft, lime with shale breaks, slight oil stains in cuttings. Carter & Ingersoll's Louis Mann 1, Stephen Jett sur No. 53, pb, td 900 ft, ripped pipe taking shallow oil, prepare to pump, made approximately 1 bbl per day, td 1357 ft.

BLANCO COUNTY—E. L. Nixon's H. Hohenberger 2, Adolph Jonas sur No. 723, showing lots of water, prep to pull 6 in csg and ream hole and lower to bottom, 1216 ft.

BURLESON COUNTY—J. H. Liles et al's G. Scott 1, Jacob Long sur, woc 1110 ft.

CALDWELL COUNTY—Allbright et al's C. P. Smith 1, James Berry sur, ru. B. C. Armstrong et al's Wilson Bell 1, north portion of Luling Townsite, drk. R. T. Belcher's Mrs. G. Moody 1, Solomon Seal sur, lcn cleared. E. R. Cosby's W. H. Cosby 1, Maxwell sur, abnd 1847 ft. Fain Gillock's Mrs. J. P. Walker 1, A. Floyd sur, lcn. W. E. Housel et al's M. C. Driscoll 1, James Berry sur, sd 1544 ft. J. O. Mack's B. Withers 1, W. House sur, sd at 1150 ft. Richardson Pet. Co.'s Patterson 1, Wm. Pettus sur, sd 780 ft; J. M. Trammell 1, E. Berry sur, sp. Rosita Oil Co.'s Lockhart State Bank 1, John Roe sur, set 7 in csg 1975 ft, dr plugs, td 2204 ft. Spokane Oklahoma O&G Co.'s K. Dougherty 1, J. Tyler sur, sd at 675 ft. Stapper Pet. Co.'s E. Martin 1, A. Floyd sur, top chalk 2427 ft, 7 in csg set at 2425 ft, dr plugs, td 2436 ft. F. R. Williams' H. L. Rodenberg 1, James Berry sur, bailing 2020 ft crevice 2003 ft, showing considerable oil.

EDWARDS COUNTY — Dan Auld's Mrs. Mamie Rigsby 1, GC&SF sur, abnd 3952 ft. Amon G. Carter et al's Frank J. Sweeten Ranch 1, sec 49, blk 2, GC&SF sur, dr 175 ft.

FRIO COUNTY — Amerada Pet. Corp.'s Halff & Oppenheimer 8, San Antonio Ditch Co. sur, dr stem stuck, circulating oil to recover, will set 7 in csg to protect hole, td 10,341 ft. Amerada Pet. Corp.'s Mrs. D. D. Harrigan 1, blk 77, Salvador Flores sur No. 306, dr at 5765 ft in new hole, td of old hole 6290 ft. H. A. Pagenkopf's & L. C. Jameson's Blackaller Est. 1, James Gourley sur, mim.

GUADALUPE COUNTY—R. T. Belcher's J. T. Fulcher 1, Robt. Smith sur, drlg Taylor marl, td 1895 ft. Ralph E. Fair, Inc.'s Fritz E. Hemple 1, G. W. Williams sur, moving off rig get swabbing machine, 30 or 40 ft oil on top of wtr, same amount comes in in 10 hrs as in 2 hrs, td 2240 ft. Kennedy & Crowley's Gus Jahns 1, Joe K. Davis sur, sd 2507 ft. Riddle Oil Co.'s Ned Herff 1, Eligio Gortari sur, testing ch in pb hole, td 2209 ft. W. Scott Townsend's Tom Terrill 1, Jesus Cantu sur, sd, rig under wtr, td 1700 ft.

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LEE COUNTY—Eleoussa Oil Co.'s Ira Sanders 1, J. Von Roeder sur, td 3675 ft, showed brackish wtr with scum of oil after acidizing, pb will perf 3280-98 ft.

WILSON COUNTY—Maryland Oil Corp. et al's Cynthia N. Trammell 1, M. May sur, twisted off dr pipe, fshg 5243 ft. R. C. Stanley's E. M. Hierholzer 2, R. Salina sur, will dr plugs, sand in Mt. Selman, td 1030 ft.

CORPUS CHRISTI DISTRICT

ARANSAS COUNTY—Barnsdall Oil Co.'s Kate Edwards 1-A, Wm. Lewis sur, dr 8500 ft. W. J. Colllins & Broughton Wilkerson's McCampbell Ranch 1, blk 10, McCampbell subd, dr plugs, td 7121 ft.

BEE COUNTY—Butler & Turner's J. R. Scott 1, sec 7, sd at 5004 ft, top Yegua 4670 ft, show sw. J. R. Dougherty's R. T. Hicks 2, Holman George sur, dr 3000 ft. Illinois Pet. Corp.'s Mrs. M. McKinney 2, L. C. Randolph sur, abnd 4264 ft. Fred Shields et al's Homer Harris 1, P. Wilcox sur, abnd 4821 ft, Pettus sand 4476-82 ft.

BROOKS COUNTY—Bishop & Wood's J. T. Maupin 1, sur 311, mi, spudded 2000 ft test. Gifford Oil Co.'s Wm. Singer 1, sur 630, coring 4243 ft, sand 3807-23 ft, showed gas and sw. Standard Oil Co. of Texas' Mestina O&G Co. 1, Salinas sur, dst 5151-68 ft, tested 290 ft of fluid, 260 ft of oil and gas, cut mud and 30 ft salt water, coring ahead 5186 ft.

CAMERON COUNTY—Ruez-Morton's, Inc., United Land Irr. Co. 1, blk 402, El Jardin sub, dr 4090 ft, top Miocene 1140 ft. Saxet Prod. Co. and A. W. Phillips' Port Isabel et al 1, sh 29, Espiritu Santo gr, mir. Stapper Pet. Corp.'s Port Isabell Irr. Co. 1, sh 29, 30 and 31, Espiritu Santo gr, td 8000 ft, dr stem stuck, heaving sh 7775 ft, backed off left 1500 ft of pipe in hole, sd for orders. Humble O&R Co.'s Relow Land Co. 1, Jos. L. Duggan sur, dr sh 5072 ft.

GOLIAD COUNTY—Dirks Brothers' Dr. G. W. Allen 1-A, Obid Marshall sur, mim. Goliad Oil Co.'s S. E. Cole 1-A, lot 33, range 4, Goliad Town tr, dr 850 ft.

JACKSON COUNTY—Cockburn Oil and T. Hargrove's Santa Theresa Farms 1, tr 34, sec 23, I&GN sur, sp. George J. Greer et al's J. R. Davis 1, D. H. Hoffman sur, dr 4820 ft.

JIM WELLS COUNTY—John Camp Prod. Co.'s J. W. Bird 1, Los Presenos de Abajo gr, dr 5480 ft. John F. Camp Dr. Co.'s W. E. Pope 2-B, sec 13, Richard King Farm Lots, dr 1500 ft. Tom Graham's (Tsesmelis & Reese's) Martha Earhart 1, John Suggs sur, perf csg, td 4005 ft. Magnolia Pet. Co. et al's A. A. Seeligson 7, Los Jaboncillos sur, dr 4780 ft. Premont Royalty Co.'s H. Fealy 1, sec 72, Haldeman sub, showed sw 2250 and 2350 ft, dr ahead, td 2380 ft. Smith Drlg. Co.'s W. D. Wade 1, blk "B" Bode subd, perf with 9 shots 5159-63 ft, comp 5701 ft, flowing 62 bbls per day 51 gr oil 5/32 in ch, tp 1750 lbs, cp 1850 lbs. Wellington Oil Co.'s Clara Driscoll Sevier 1, La Anima Sola gr sur, csg gave away, set short string of 8 in csg, woc 5668 ft.

KARNES COUNTY—DeGraffe & Reele's Cochran 1, McConnell League, temp abnd, 1307 ft.

LIVE OAK COUNTY—R. A. Davis' John & J. P. Marbach 1, Stephen Hays sur, abnd 919 ft, shells were topped at 872 ft. R. H. Feltner et al's Sanger Ranch 2, GC&SF Ry. sur No. 385, abnd at 3259 ft, top Pettus 3214 ft, sw, top Mirando 2989 ft, sw. Loma Oil Co.'s L. Jacob Corp. 8-B, GH&H sur, sp; C. L. Terrell 1, J. Houghihan sur, top Pettus at 1192 ft, abnd. F. D. Salter et al's I. W. Griffith 2 sec 20, fsg at 924 ft.

NUECES COUNTY—Mills Bennett Prod. Co.'s William Heuermann 1, C. Land sur, dr 2650 ft. J. K. Culton's I. M. Singer 1, lot 13, blk 39, Flour Bluff and Encinal Garden Tracts, sp and set sur csg. Fain Gillock et al's Robt. Poenisch 1, lot 11, sec 32, Flour Bluff and Encinal Gardens tr, ru. W. L. Hinds' Lucy J. Rivers 1, sec 301, dr 3760 ft. Navarro Oil Co.'s E. M. Poenisch 1, lot 21, blk 41, Flour Bluff and Encinal Gardens tr, lcn abnd. Phillips Petroleum Co.'s John Harney 1, Harney Lands, sh 11, coring 6275 ft. Seaboard Oil Corp.'s James P. Luby 1, sec 2, blk 4, Luby subd Petronilla Ranch, Palo Alto gr, flowing 125 bbls per day ⅛ in ch, tp 850 lbs, cp 1450 lbs, td 5332 ft. Seaboard Oil Corp. of Delaware's J. O. Chapman et al 1-C, sec 111, Laureles Farm Tracts, mim. Shell Pet. Co.'s State of Texas 1, piling driven and sd. Sloan-Harvey & Green River Oil Co.'s Eno Cassens 1, Antonio Longoria gr, lcn abnd. Southern Minerals Corp.'s Richard King 1, sec 32, still trying to pull dr stem 6515 ft; H. G. Yakey 1, sec 38, King Ranch subd, drk. Taylor Pet. Co.'s J. V. Styles 1, sec 18, I. Z. Bishop subd of Petronilla gr, coring, td 6050 ft. United Prod. Corp.'s W. H. Harvey 1, Garcia sur, sd at 9002 ft.

REFUGIO COUNTY—Chew & McIntyre's Willie and Emma Daaman 1, sec 16, lcn abnd, lcn changed; F. E. Kloesel 1, sec 11, Bonnie View Ranch subd, lcn. Edwin M. Jones' Ben Shelton 1, Texas Co. lse., Refugio Town gr,

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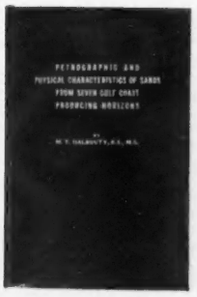

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By M. T. Halbouty, B.S., M.S.,
Merit Oil Corp.

The material printed in this book was first published in The OIL WEEKLY in a number of installments, extending over a seven-week period. Because of the widespread interest and demand for copies, it is being presented in book form for the benefit of those who may wish to study or continue the research work of M. T. Halbouty, the author.

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dr 4500 ft. Randon Oil Co.'s & American Liberty Co.'s J. Vincent 1, CEIP&M sur, prep to sp. United Prod. Co.'s J. J. O'Brien 12, Refugio Town Tracts, coring and drilling 9140 ft.

SAN PATRICIO COUNTY—Atlantic Ref. Co.'s Maryland Trust Co. 2, blk 23, McCampbell subd, fsg 6552½ ft. Conroe Dr. Co.'s F. L. Foley 1, C. F. Delmas sur, abnd 6505 ft. Danrey Oil Co.'s Jean Davis 1, Wm. Boyd sur, set sur csg, woc. Eleanor Oil Co.'s J. F. Green Est. 1, T. T. Williamson sur, wshg down around 5900 ft, prep to set csg, td 7305 ft. Humble O&R Co.'s John S. McCampbell 1, R. Martines sur, dr 3465 ft. Phillips Pet. Co.'s B. E. Ivey 1, sec "K", perf 5339-43 ft, dst end 10 min started flowing oil, tool closed and flowed 20 min due to gas in tool, 50 lbs. pres., rec 1500 ft oil and 480 ft sw, wait on orders, td 5410 ft. Plymouth Oil Co.'s J. F. Oden 1-A, Archibald Herron sur, bldg drk, digging pits.

VICTORIA COUNTY—G. M. Richardson et al's Mrs. K. Noll Est. 1, C. W. Vickery sur, dr 4555 ft. Transwestern Oil Co.'s A. M. McFaddin 3, J. Viarin sur, dr 5820 ft.

WILLACY COUNTY—Ruez-Morton, Inc.'s Francisco Armendiaz 1, Little sh 4, San Juan de Carricitos gr, drk. Shell Pet. Co.'s Yturria Land & C. Co. 1, sh 64, San Juan de Carricitos gr, hard sand and stone, fsg for dr pipe stuck at 7670 ft, td 10,286 ft.

TEXAS GULF COAST

AUSTIN COUNTY — Cockburn & Hargrove's Bartay 1, w of Bellville, M Steussy sur, dr below surface csg.

BRAZORIA COUNTY—Pure's Slade 1, Peach Point prospect, S. F. Austin sur, abst 20, hole cleaned to 7842 ft, preparing to dr ahead.

COLORADO COUNTY — Humble's Relaw Land Co. 1, Eagle Lake prospect, J. L. Duggat sur, abn 5725 ft.

FT. BEND COUNTY—Marlen Oil Co.'s Jurea 1, Needville prospect, H. & T. C. sur, sec 26, dr shale 5186 ft. Schwab & Gem Oil Co.'s Arcolla Sugar Mill 1, Arcolla prospect, D. Fitzgerald sur, ru.

HARRIS COUNTY—Humble's Settegast 1, Friendswood prospect, Perry & Austin sur, dr shale 3286 ft. Stanolind's Oates 1, Clinton area, C. Martinez sur, swabbing 8075 ft. Superior's Butler 1, Bammel area, J. Ehrhardt sur, dr shale 8798 ft.

JEFFERSON COUNTY—Magnolia's Phelan 1, Cheek area, S. Stivers sur, shut in at 8460 ft. Hebert & Smith's Broussard Hebert 1, Pine Island area, J. W. Gaffey sur, set surface csg.

LIBERTY COUNTY—Jack Frazier's Hanchey 1, Hardin area, H. B. Johnson sur, running an electrical logging device at 7696 ft.

MATAGORDA COUNTY — Continental's Hawkins 2, Shepards Mott area, D. McCarthy sur, woc 5409 ft. Royal Oil Co.'s Ewing 1, Sugar Valley area, A. S. Sojourner sur, dr shale 6928 ft. Sun's Craig 2, Hawkinsville area, J. Williams sur, abn 5965 ft. United North & South Dev. Co.'s Lambert 1, sw of Buckeye, M. Cotton sur, making gas and distillate at 9178 ft. Same operator's Stoddard 1, same area, M. Cotton sur, ru.

MONTGOMERY COUNTY—G. E. Gates' Texas Long Leaf Lumber Co. 1, Splendora area, Walker County School Land sur, coring sand 5825 ft. Texas Co.'s Crawford 1, Willis prospect, U. Springer sur, ru.

SAN JACINTO COUNTY—Cockburn et al's Whitten Estate 1, Keno area, Wm. West sur, dr shale 5284 ft.

WYOMING

BIG HORN COUNTY—J. W. Bales' Parker 1, csw nw 23-49n-89w, dr 1290 ft. Wood Callahan Oil Co., Ltd.'s Evans 1, ne ne nw 12-49n-91w, ru.

PARK COUNTY—General Petroleum Corporation's Government 1, nw nw nw 33-47n-100w, milling on junk, td at 5996 ft.

WESTON COUNTY—The Big Indian Oil & Development Co.'s P. J. George 1, sw se nw 26-48n-64w, mim.

UTAH

EMERY COUNTY—California Co. and Continental Co.'s Unit 1-A, coring at 4900 ft.

GRAND COUNTY—Cane Creek Oil Co.'s Government 1, nw sw 31-26s-21e, spd 30 ft.

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KANSAS
Completions
Week Ended June 12, 1937

Company, Well and Location	Init. Prod. Bbls.	Depth
BARBER COUNTY—		
Olson et al, Whelan 1, swc 29-31s-11w	864	436
BARTON COUNTY—		
Empire, Demel 3, sw se sw 9-16s-13w	1257	3392
Davis et al, Stechel 9, se sw se 1-20s-11w	1400	3272
I.T.I.O., Bryant 1, sw sw nw 25-20s-11w	1417	3306
BUTLER COUNTY—		
Cox & McGinnis, Houston 2, 1-25s-3e, se sw ne	221	2683
Sheldon et al, Dobran 1, sw ne ne 11-25s-3e	350	2699
CHAUTAUQUA COUNTY—		
Sagamore, Kingston 2, sw sw se 8-32s-11e	¶1	1471
Schaffer, Nuckrolls 1, nec 12-33s-9e	*	2540
Tuesday Oil, Sturges 1, nw ne ne 2-33s-11e	*	2042
Beeler & Cavert, Graham 1, csl se nw 29-33s-12e	¶1¼	655
Ira Scott Lambe 1, sw nw ne 18-33s-13e	*	2006
Morris Gold, Payne 1, se nw nw 32-33s-13e	*	1883
COFFEY COUNTY—		
W. E. Ellis, Hanan 1, se sw se	*	1690
COWLEY COUNTY—		
Texas, Beeman A1, ne sw 33-31s-3e	*	3352
ELLIS COUNTY—		
Lewin et al, Craig 1, ne ne se 6-11s-16w	*	3610
British American, Bemis 6, se nw sw 22-11s-12w	2943	3430
Ryan Bemis B4, sw se nw 22-11s-17w	2733	3419
Deep Rock, Baumer 4, nw ne nw 27-11s-17w	3057	3552
Noble Pet. Co., O'Laughlin 1, sw nw nw se 13-12s-19w	*	3943
ELK COUNTY—		
Diller, Key 5, sw sw nw 25-31s-10e	35	1661
ELLSWORTH COUNTY—		
Frost et al, Dolecheck 1, 36-14n-8w	*	3515
FRANKLIN COUNTY—		
Texas, Zrelsdarf 19, nw sw 9-16s-21e	2	680
GREENWOOD COUNTY—		
O. K. Oil Co., Lovett-McNeil 8, ne se se 22-23s-13e	100	1624
Polhamus et al Davis 1, ne ne se 6-24s-12e	*	1824
O. V. Paul et al, Bryden 3, nw sw se 31-25s-9e	*	1160
B. B. Oil Co., Webb 1, c ne se 3-26s-13e	*	1455
C. C. Whitaker, Miller 1, ne nw se 8-28s-11e	25	1227
LOGAN COUNTY—		
Rosespring et al, Wright 1, c se se 12-15s-35w	*	4655
McPHERSON COUNTY—		
K. C. Producing Co., Severtson 1, cel ne se 9-19s-2w	*	2981
RENO COUNTY—		
Shell, Whipple M6, cnl ne ne 15-26s 9w	5711	4133
Haynes Drilling Co., Mueller 3, c n½ nw 30-24s-4w	476	3996
RICE COUNTY—		
Aylward et al, Johnson 5, nw ne ne 17-21s-7w	1156	3392
Douglass, Theede 5, se sw sw 9-21s-7w	2140	3374
Grace Oil Co., Gossman 3, se ne ne 8-21s-7w	4100	3374
Gulf, Schmidt 3, nw sw se 6-20s-10w	1444	3310
Poncin 1, nw se ne 5-20s-10w	1409	3327
Mid-Continent, Wood 6, nw c 4-20s-10w	173	3330
Gulf, Knop 7, se ne nw 33-19s10w	1305	3287
Bell, Bayer 1, sec 29-19s-10w	*	3312
Skelly, Detmers 3, sw se sw 28-19s-10w	1399	3305
Terry & Feaster, Lisk 2, se ne sw 32-19s-9w	*	3270
Shell et al, Hanton B-1, ne ne sw 29-18s-9w	*	3289
Texas, Hathaway 1, nw nw ne 34-19s-10w	*	3315
RUSSELL COUNTY—		
Empire, Bander A2, se ne nw 25-15s-14w	1054	3330
Gulf, Hoffman 2, se ne sw 31-15s-13w	1254	3270

*Failures; †Junked; ¶Million cu. ft. gas.

Company, Well and Location	Init. Prod. Bbls.	Depth
Phillips et al, Eichman 2, ne nw se 34-15s-13w	293	3299
Darby & Reserve, Michaelis 3, ne sw nw 31-15s-13w	2654	3263
S. I. Southern, Inc., Sennens 2B sw se nw 30-15s-13w	1080	3293
Darby, Bumber 3B, se sw nw 11-14s-15w	1090	3282
Hartman & Blair, Kouback 8, n½ sw sw nw 2-14s-15w	2800	3298
Empire, Stricker 2, sw nw ne 35-14s-14w	1505	3283
Vaughn 2, se sw sw 17-14s-14w	680	3060
Equity Gas, Harbaugh 1, ne nw nw 19-13s-12w	*	3098
SEDGWICK COUNTY—		
Cameron et al, Smith 1, 13-27s-23	*	3272
SUMNER COUNTY—		
Stelbar, Barlow 6B, sw sw se 33-31s-1w	915	3700
Texas, Carr 5, se se ne 5-32s-1w	686	3683
TREGO COUNTY—		
Rosespring et al, Duncan 1, sec 35-12s-21w	*	3876
WOODSON COUNTY—		
Higgins et al, Harding 1, csl se sw 29-23s-15e	*	1668

*Failures; †Junked; ¶Million cu. ft. gas.

OKLAHOMA

Completions

Week Ended June 12, 1937.

Company, Well and Location	Init. Prod. Bbls.	Depth
CARTER COUNTY—		
Carl Carter, A. N. Harley 10, sw nw sw 19-2s-3w (pb 432)	*	600
Ideal O&G, Schroggins 12, cse se se 32-3s-3w (pb 1205)	12	1354
Sinclair Prairie, Loman 6, sw sw se 9-4s-3w	1	1199
CLEVELAND COUNTY—		
Sinclair Prairie et al, Bagby 4, se sw nw 27-10n-2w	¶45 & 18,782	7278
CREEK COUNTY—		
Dundee, Beaver 2-A, cse nw ne 4-17n-12e (otd 1540) (pb 1550)	*	2203
Sinclair Prairie, Tucker 7, ne ne nw 10-17n-7e (otd 2675)	51	2698
Shoales 11, sw ne ne 33-16n-9e	*	3515
G. E. Marble, Tiger 4, nw ne ne 13-19n-7e (pb 2501)	35	2516
GARVIN COUNTY—		
Cox & Hammon, Norton 2, nw sw ne 32-1n-3w	*	3153
Harris 2, sw se nw 32-1n-3w	140	2930
Skelly, Gross 1, se ne sw 32-1n-3w (otd 2410)	55	2800

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Company, Well and Location	Init. Prod. Bbls.	Depth
GREER COUNTY—		
Hooser, Price 1, sw nw nw 25-7n-21w	*	1140
HUGHES COUNTY—		
Empire, Born "B" 1, se sw nw 20-7n-8e	232	2930
JEFFERSON COUNTY—		
Palmer & Palmer, Jones-Barrett 3, se sw sw 19-6s-5w (pb 1525)	*	1590
Circle Oil, Seay 43, nw nw se 3-7s-5w	140	1219
LOGAN COUNTY—		
Champlin Ref., Pfeiffer 4, sw ne nw 4-19n-2w	¶10.25 & 5405	5072
Pfeiffer 3, se ne nw 4-19n-2w	4706	5072
Helmerich & Payne, Randall 1, sw sw nw 24-16n-1w	*	5552
MUSKOGEE COUNTY—		
Lease Inc., Porter 1, sw se se 4-13n-10e	75	3390
Metzgar & Fultz, Pelcher 1, sw ne se 7-14n-19e	*	870
NOBLE COUNTY—		
Magnolia, Forsyth 1, se se sw 23-21n-2w	*	5393
OKMULGEE COUNTY—		
Dixie, Crum 1, ne ne se 20-16n-12e	*	2711
Aggas, Alexander 4-a nw se sw 16-15n-14e	*	1807
Strozier, Culp 1-B, nw sw ne 8-15n-12e	¶3.5 & 38	2210
W. O. Schack, Field 1A, sw ne nw 16-14n-11e	510	2435
OKFUSKEE COUNTY—		
Sinclair Prairie, Fisher 11, nw se sw 19-10n-9e	110	1837
Grimes, Wind 6, cse ne 35-11n-9	10	1485
OKLAHOMA COUNTY—		
British American, Johnson 1, nw nw se 27-12n-3w	5115	6540
Ohio Oil, Kiefer C. J. 1, nw ne nw 5-13n-3w (pb 6645)	25	6755
Dahl 14, sw ne se 31-14n-3w	¶30 & 17,743	6640
OSAGE COUNTY—		
Lewis Prod., 7, ne se se 28-24n-7e	200	2647
8, se sw se 28-24n-7e	270	2610
Midco Oil Co., 1A, ne se sw 35-27n-7e	25	2646
PAYNE COUNTY—		
Roy Kimzey et al 1, nw nw se 16-18n-3e	*	3910
Sun Oil, Worth 1, nw sw ne 6-19n-5e (pb 3716)	152	3722
PONTOTOC COUNTY—		
Skelly, Smith 2, ne ne ne 35-2n-2n	¶2.5 & 952	3855
Burke Greis, Chambers 2, nw ne nw 36-2n-6e (pb 3866)	4075	4391
Chambers 5A, nw nw 36-2n-6e	¶4.2 & 3099	3886
Moore, Smith "B" 8, nw ne ne 36-2n-6e	¶3.9 & 3200	3670
Amerada, Wooley 13, sw se nw 22-2n-7e	¶1.5 & 2274	3751
Magnolia, F. Young 1, se ne sw 22-2n-7e	548	3910
Sinclair Prairie, Vivian 1, se sw nw 22-2n-7e (pb 3742)	1201	3802
Skelly, Metro Life 11, se se sw 23-2n-7e	¶1.7 & 1375	3870
Crosbie, Burris 3-C, sw se nw 27-2n-7e	132	2515
Moore, Woodroff 6-A, se ne se 29-2n-7e	¶2.2 & 518	3504
Thompson 1, nw se se 33-2n-7e	160	4122
Papoose Oil, Jones 1, nw sw ne 2-4n-5e	*	2853
Sinclair Prairie, Gordon 2, se sw ne 21-5n-5e	80	2610
POTTAWATOMIE COUNTY—		
J. F. Smith, Brandeberry "B" 2, ne se sw 34-8n-4e (pb 4010)	50	4208
Indian-States Oil, Gunter c½ ne se sw 32-11n-4e	300	4471
Stanolind, Amerada, J. W. Rushing 2, sw se sw 32-11n-4e	282	4460
SEMINOLE COUNTY—		
Stanolind Amerada, Culley "B" 1, se nw sw 12-5n-7e	197	4343
Hall et al, Casey 1, se sw ne 30-6n-8e	*	1300
Tide Water, Nellie 2, ne se se 12-8n-5e (pb 4258)	10	4364
Amerada, McLaron 1, sw nw ne 36-10n-7e	1454	3637
Smith, Kiowa 1, nw se se 34-11n-8e	*	2002
STEPHENS COUNTY—		
G. L. Pace, Duncan 6, sw nw ne 28-2s-7w (pb 1276)	*	1764
(pb 1276)	*	1764
TILLMAN COUNTY—		
Magnolia, Brown 1, sw se ne 21-3s-18w	*	6484
TULSA COUNTY—		
Johnson O&R Co., sw ne sw 31-19n-10e	180	2277
WAGONER COUNTY—		
A. Z. Oil, Ballard 1-A, ne nw nw 16-16n-15e	5	1287

*Failures; †Junked; ¶Million cu. ft. gas.

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General Electric Company, Schenectady, New York, have recently introduced commercially a new synthetic insulating compound under the trade name "Flamenol." While similar to rubber in its characteristics, it contains no rubber and will not support combustion.

Termed the most radical cable development in the last 25 years, Flamenol is entirely different from any insulation previously available. In addition to being non-combustible it is highly resistant to moisture, acids, alkalies, and oils. It has excellent aging characteristics and is strong mechanically.

The properties of Flamenol are such that it can be made a very soft and flexible compound, or made to be one with celluloid-like rigidity. It can be put into solution for coating or impregnating, and can be compounded, filled, calendered, and extruded in much the same fashion as rubber.

Flamenol-insulated cable is recommended for power and control circuits at 600 volts and less, and for operation at a maximum copper temperature of 60° C. It is well adapted to machine-tool wiring, switch-board wiring, and battery and coil leads. Flamenol has a permanently smooth finish and foreign materials do not readily adhere to its surface. It is available in a variety of colors for circuit tracing. For most applications Flamenol is used without any protective finish, such as braid, lead or armor. It is only where the cable will be subjected to extreme mechanical abuses that such a finish is necessary.

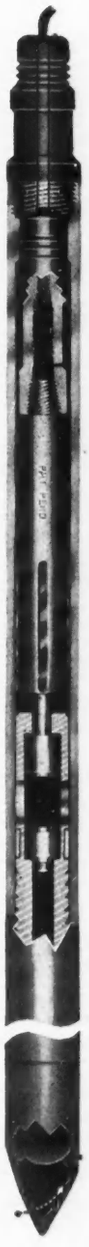
PLUNGER TYPE BAILER
Ideal Bailer Company

Ideal Bailer Company, Oklahoma City, Oklahoma, has introduced a new plunger type bailer, which according to the manufacturer increases safety and saves time in cleaning out and reconditioning producing wells.

Different type heads, quickly interchangeable, make it possible to adapt pump to any condition. One head permits jars and sinker to be used above bailer if it is desired to do so.

Another important feature is the plunger construction, which allows limited free movement of plunger weight in relation to the sleeve. A very close fitting sleeve and the fluid expansion ring, an exclusive feature of this pump, assures maximum efficiency with every stroke of plunger. It allows plunger weight to swivel and prevents kinking of lines when hard spudding becomes necessary.

The patented one-piece bottom, also an exclusive feature of this pump, permits maximum opening allowing large pieces of junk and debris to be drawn into bailer and eliminates necessity of using tools in nearly all reconditioning jobs. It also prevents possibility of losing the bottom. Other type bottoms are stocked and quickly interchangeable when necessary.



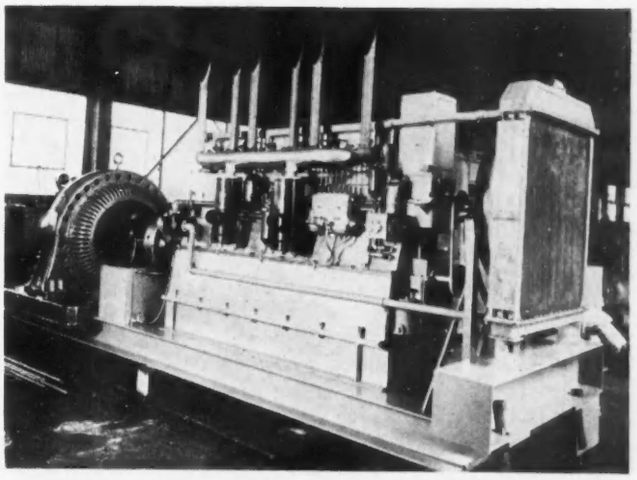
Ideal Bailer

DRY BATTERY
Le Carbone Manufacturing Company

Le Carbone Manufacturing Company, Boonton, New Jersey, anounces three new dry battery units, types 618, 2618, 619, each with 1000 watt-hour rating. The operating voltage is steady and practically constant. The new cells deliver full capacity at 1 volt or over depending on the average current output. On intermittent work the output rating can be doubled, provided the rest periods aggregate the same time daily as the discharge periods.

PORTABLE DIESEL GENERATING PLANT
Western Engine Corporation

Western Engine Corporation, 1000 Alhambra Avenue, Los Angeles, recently delivered a new type portable Diesel generating plant consisting of a type DS-6 6-cylinder 4-cycle Diesel engine direct connected to a 150 KW Allis-Chalmers 220-440-volt, 60-cycle alternator. The engine, generator, cooling radiator and 50-gallon fuel oil tank are mounted on a structural steel skid base. An instrument panel in a gas- and dust-tight steel box includes AC ammeter and voltmeter, and a DC exciter voltmeter, rheostat and main-line switch.



Type DS-6 Western Diesel portable generating plant, showing air intake cleaners, fuel pumps and auxiliary equipment.

A Woodward Type C hydraulic governor controls the engine speed within close limits so that two or more of the units can operate parallel with each other and maintain perfect frequency phase. Other accessory equipment includes a lubricating oil filter, lube oil cooler, two air cleaners, a Fast coupling between the engine and generator, and Bosch fuel injection system. A gasoline engine-drive air compressor and air storage tank are mounted on a separate skid base.

The unit is designed for ready conversion to natural gas, by removing the fuel system and air intake manifold, and substituting in their place a natural gas carburetor and a magneto. The spark plugs screw into the same place that the injection nozzles are located. The compression is lowered by inserting a spacer between the heads and cylinder block.

Western DS engines are normally rated at 25 horsepower per cylinder at 750 r.p.m. They may be governed at 900 r.p.m. for certain applications, at which point 180 brake horsepower is developed. Aluminum side cover plates and rocker arm boxes materially reduce the engine weight. Removable cylinder liners, full pressure lubrication with dual pumps, and total enclosure of the engine are other features.

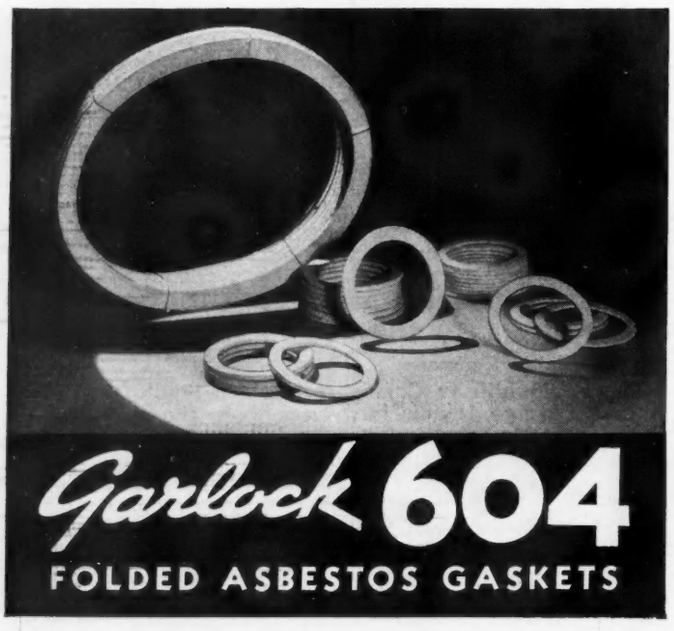
CHRONOGRAPH WRIST TIMERS
M. J. Stillman Company

The M. J. Stillman Company, Inc., 116 South Michigan Avenue, Chicago, Illinois, introduces a new and most useful line of Chronograph Wrist Timers for distribution to serve the growing demands of the industries for exacting accuracy.

These instruments embody a most reliable time piece of 15 jewels, recording time of day and in addition, the chronographic features of a sweep hand registering in seconds and fifth seconds, or if desired, in decimals of a minute. Another model has computations on the dial which may be used for ascertaining production per hour, miles per

A good folded asbestos gasket must be made of the best heat resisting materials, accurately formed to the required size. A superior folded asbestos gasket, such as GARLOCK 604, meets all those specifications and has that plus quality which identifies those products built by the hands of skilled and careful craftsmen. During the past half-century millions of boiler manhole and handhole plates have been gasketed with GARLOCK 604. Their superiority and economy have been demonstrated conclusively; it is expensive to use inferior gaskets. If you are not using GARLOCK 604 gaskets—try them.

THE GARLOCK PACKING COMPANY, Palmyra, New York
Tulsa, Oklahoma. Los Angeles, Calif. Houston, Texas



hour or in fact the timing of any single operation is expressed in terms of hourly capacity or speed.

The cases are of stainless steel and all movements are equipped with first quality hair springs and metal balances, making them non-magnetic and minimizing expansion and contraction. The double lugs on either side of the crown allow for "take-out-time" for interrupted observations and again proceeding without making it necessary to return the hand to zero. When the sweep hand is in motion, the zero throwback lug is automatically locked, thereby preventing an accidental return to zero.

Coffing Hoist

CHAIN HOIST

Coffing Hoist Company

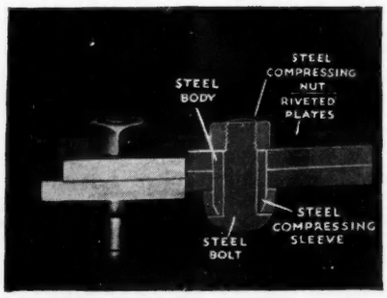
Coffing Hoist Company, 313 Van Buren Street, Danville, Ill., announces the "Power Master" spur gear chain hoist. It incorporates many new time- and labor-saving features, including gravity lowering, lowering speed controlled by clutch and governors which may be stopped at the fractional part of an inch, and has free chain for quick adjustment to the load. The hoist is convertible in capacities of from 1½ to 6 tons, is exceedingly light in weight. The 1½-ton hoist weighs 98 pounds, the 3-ton 110 pounds, the 4½-ton 123½ pounds, and the 6-ton 141 pounds.

The hoist has precision ball bearings, with planetary gear system sealed and running in oil. Equipped with special chain designed to stand 400 percent overload. All models are tested to 100 percent overload.

FRONT DRIVE RIVET

Multi-Seal Manufacturing Company

Multiseal Manufacturing Company, 123 North Jefferson, Chicago, has perfected a front-drive rivet for maintenance and construction use. It is constructed of a hardened steel body with horizontal cutting ribs, through which a special steel bolt passes. A steel compression sleeve is placed on



Multi-Seal Rivet

the taper of the body and held by the bolt head. The compression nut locks the assembly together. The rivet is driven into the hole and the hex nut drawn up with a wrench or nut runner. The steel compression sleeve is drawn down over the shank and forms a steel rivet, sealing head on the inside of the job leaving only a hex nut on the outside.

FLUXING MATERIAL

American Solder & Flux Company

American Solder & Flux Company, Berkley St., Philadelphia, Pa., has placed on the market the product called "Tinol Soldering Syrup," a new fluxing material in a highly concentrated form that may be used on all kinds of soldering and tinning operations under almost any condition. It may be diluted with water or alcohol in the proportion best suited for the operation, and the active deoxydizing ingredients are effective at extremely low temperatures.

Its wetting effect on oil filmed surfaces enables the solder to flow freely without any previous cleaning.

This Week with the Industry's EQUIPMENT SUPPLIERS

Frosty Martin Goes Back to Findlay for Celebration

W. R. (Frosty) Martin, president of Martin-Decker Corporation, Long Beach, California, is in Findlay, Ohio, to attend the Golden Celebration of Oil and Gas, which celebrates the fiftieth anniversary of the drilling of the first wells at Findlay. Martin is to be a guest of the celebration committee, headed by O. D. Donnell, president of Ohio Oil Company.

The first 13 wells at Findlay were drilled by Martin's father and his two brothers. The largest well was Karg 1, and as a 13-year-old kid he sat on the bellows and watched his dad drill it in. "I expect this celebration to be the greatest get-together of very intimately acquainted 'old timers' ever held," Martin said, "as we are coming from all parts of the world. Since Findlay started in 50 years ago it has turned out many outstanding men in the oil fraternity, and quite naturally many of these men are in responsible positions wherever oil is found."

Martin went to Findlay when he was 13 years of age, and says he "went to school a little—played 'hooky' a lot, this 'hooky' time being spent around the various drilling wells. I left school at the age of 16 and got a pumping job. After a little more 'beef' had been accumulated on my bones, I got a job tool dressing, and was drilling before I was 21 years old. And before I was 22 years I was contracting. I ran tour for 22 years." Martin says he was always a nut about "new gadgets," but this was inflicted on him in a perfectly normal course of events and manner inasmuch as his father was "tarred with the same stick." His father was granted the first patent for a portable drilling machine in 1885.

W. R. MARTIN
Among oldtimers gathered for Findlay celebration

Lamtex Equipment Corporation Occupies New Home

Lamtex Equipment Corporation, Fort Worth, Texas, has recently moved into its new factory building which greatly increases facilities for the manufacture of the Lamtex casing pump and other products.

W. Fred Cox is president of the company and H. D. "Dave" Collins is vice president.

Continental Supply Company Buys Plant Site in Houston

Purchase of 10 acres in the Niels Esperson Industrial Tract in Houston by The Continental Supply Company of Dallas has been announced. The property, located on Buffalo Bayou and Navigation Boulevard, fronts 800 feet along the bayou, a navigable lateral of the Intercoastal Canal.

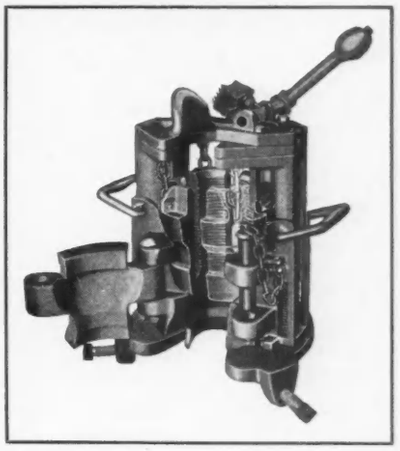
When asked about the proposed plant, William J. Morris, president of The Continental Supply Company stated, "We have not made any definite plans about what improvements we are going to make on this property."

James J. Newman promoted by B. F. Goodrich

James J. Newman, for the past four years a vice president of The B. F. Goodrich Company, has been named

Lamtex Equipment Corporation's new quarters at Fort Worth

IT MEANS STOP —SAFETY FIRST



—and to the pulling gang the O'Bannon Model 8 Tubing Spider also means fast, carefree, dependable operation.

So automatic is this useful tool that it is almost human in its operation—and so sturdy that it is good for years of ordinary use. It can be used with any casing head, and any size of tubing.

Because of its many marked advantages—and above all, because of its safety features —use the O'Bannon Model 8 Spider. Request a demonstration — on your property — or order a spider from

YOUR SUPPLY STORE

Walter O'Bannon Company

TULSA, OKLAHOMA

O'BANNON *Safety* TUBING SPIDER

William G. and Ray Jensen with their new plane

vice president and general manager of the company's tire division, it has been announced by S. B. Robertson, president.

Newman joined the Goodrich organization in 1931 as assistant to the president, and was elected vice president in 1933. As an operating executive of the company with general duties, he has been in close contact with all selling, purchasing, manufacturing and financing plans of the corporation.

Mahan Appointed Advertising Manager for Westinghouse

S. D. Mahan has been appointed general advertising manager of Westinghouse Electric & Manufacturing Company.

Formerly manager of merchandising advertising, Mahan in his new position will have general supervision over all advertising and sales promotion work of Westinghouse Electric & Manufacturing Company and its subsidiary companies. His headquarters will be in Mansfield. Ohio.

Native of Waterford, Pennsylvania, and graduate of Edinboro State Teachers' College, Mahan has been directing advertising and sales promotion activities in advertising agencies and industrial concerns for more than 20 years. Starting in Cleveland he was first associated with H. K. McCann Company and while with this agency spent four years in Toronto, Canada. In 1924 he returned to Cleveland with Roger Williams Company. Then he joined the advertising agency of Fuller and Smith and Ross where he was vice president and manager of the Cleveland office. Later he became vice president of Greanleaf Advertising Agency in Boston which post he left in 1933 to become merchandising advertising manager of Westinghouse and since that time has made his headquarters in Mansfield.

Roger Bolin has been appointed merchandising advertising manager of the company succeeding Mahan. Bolin joined the Westinghouse organization in 1925 at East Pittsburgh and since that time has been continuously associated with merchandising advertising and sales promotion activities of the company.

Oil Company
STOCK FORMS
for Accounting and Field Reporting

The GULF PUBLISHING COMPANY operates a department for the design and production of accounting and field reporting forms for oil company use, and carries in stock for immediate delivery over 100 forms for the following departments:

ACCOUNTING PRODUCTION PAYROLL MATERIAL
GEOLOGICAL TRAFFIC

We have published a completely illustrated catalog of these forms. If you have not received your copy we will send you one upon request.

GULF PUBLISHING COMPANY
3301 Buffalo Drive Houston, Texas

Complete stock of these forms are available in:
CORPUS CHRISTI—from Jack Bonner Company
SAN ANTONIO—from Alling Blue Print Company

Jensen Brothers Manufacturing Company Buys Plane

Jensen Brothers Manufacturing Company, Coffeyville, Kansas, has taken delivery on a new C-6, Waco cabin plane. The plane is used to more effectively cover the company's sales territory throughout the oil country.

Burt Organizes Tank Separator, Treating Firm

E. M. Burt, former district sales manager for M. & V. Tank Company, Wichita Falls, and associates have organized the Burt Tank, Separator & Oil Treating Corporation, which is specializing in the manufacture of oil treating systems. Headquarters have been established at Wichita Falls. Burt is president of the new concern. Enos K. Burt is vice president, and J. D. Reynolds, Camden, Arkansas, is secretary-treasurer.

John F. Allen Company Sold to Hannifin Manufacturing Company

Hannifin Manufacturing Company, 621-631 South Kolmar Avenue, Chicago, has purchased the machinery, equipment and name of John F. Allen Company of New York, makers of air- operated riveting machines. Manufacture, sales and service of Allen riveting machines will be continued as the Allen Riveter Works, Division of Hannifin Manufacturing Company, at St. Marys, Ohio. Hannifin Manufacturing Company has recently completed a plant at St. Marys, for production of large machinery.

H. & B. Sales Representing Wilson Manufacturing Company

H. & B. Sales Company, Long Beach, California, has been made California representative for Wilson Manufacturing Company.

It is Unlawful to Repair Patented Machinery

In view of the recent litigation in the oil industry concerning the repairing of patented oil field equipment, the following item reprinted from Popular Aviation will be of interest to oil company executives and machine shops:

"According to the law, you as an owner of any kind of machinery have no legal right to make repairs on the portions of such machinery that are patented.

"Perhaps you have paid in full for the machinery. Perhaps it is legally yours. But that makes no difference in the eyes of the law when it comes to repairing or replacing the patented parts.

"You may break or completely destroy the patented parts if you feel like doing that. Ownership permits destruction, but it does not permit building up of machine parts that are protected by law.

"Patents often apply only to a few specific parts. You may do whatever you wish to the unpatented parts, of course. But the patented portions must not be repaired by you or by anybody else without the permission of the patentee.

"Anybody furnishing parts for patented portions or repairing those parts who is not licensed by the patentee to do so is subject to damages for infringement."

Squeaks from the Bull Wheel

Dog House Notes

"I suppose you're mad because I came home last night with this black eye."

"Who said you came home with it?"

Fire!

"What's the row over at the carnival?"

"Oh, a fake dentist sold the fire-eater a set of celluloid teeth."

Unique

What do you think of our town?

Well, it is certainly unique.

What do you mean by unique?

Well, it comes from two Latin words —"unus," meaning "one," and "equs," meaning "horse."

Where Is Thy Sting?

They listened with due submission and humility. In the course of his lecture he said:

"My young friends, the floors of hell are paved with champagne, motor cars and chorus girls."

He was horrified to hear one of the students say, in a sepulchral tone:

"Oh! death, where is thy sting?"

No Compliment

Fair Artist—I hope you don't mind my sketching in your field?

Farmer—Oh dear no, miss. You keep the birds away better than any scarecrow.

Prayin' for Rain

A passerby, riding by a hill billy's shack in the mountains, noticed that the roof was on fire. He brought his car to a sudden stop, and hurried up to the house.

"Your house is on fire," he shouted to a thick-bearded mountaineer.

"Ah knows it, stranger," nodded the mountaineer.

"Then why aren't you doing something about it?" cried the excited stranger.

"Ah am," drawled the mountaineer. "Ever since the fire started, Ah bin prayin' for rain."

Alas

"You can get anything from a mail-order house," remarked the lady next door.

"Everything, alas, but a male," sighed the spinster.

A Job Well Done

The film magnate wanted one of his stars to accept a reduction in salary. So he said to his junior partner: "You tackle him, Paul. You're better educated than what I am. You can give him a better line of talk than me."

Paul went off on his disagreeable job. When he came back, the magnate asked anxiously:

"Well, how about it?"

"He acquiesced," said Paul.

"Did he? The dirty dog."

Stretching the Point

A railroad agent in Africa had been "bawled out" for doing things without orders from headquarters. One day his boss received the following startling telegram:

"Tiger on platform eating conductor. Wire instructions."

Silence

The actor was visibly downcast.

Did you get any applause?

Yes; it sounded like a caterpillar crawling over a Persian carpet whilst wearing rubber shoes.

The Golfer Swings

The hangman tightened the knot and asked the condemned golfer:

"Have you anything to say before I hang you?"

"Mind if I take a couple of practice swings?"

Tall Story

The American thought he had them all beaten when he said there was a building in New York so high that it took a person at least twenty-four hours to get to the top.

"Sure," said Pat, "there's a little building I was working on some time ago in Dublin. One Saturday morning, about 11 o'clock, I dropped my hammer from the top; and faith, when I went to work on Monday morning, the thing hit me on the head."

Stop Watch

"Did your watch stop when it hit the floor?"

"Sure; did you think it would go on through?"

F.D.R. Note

"I'm at the age now when I can do my best work."

"Why, you're over seventy!"

"Well, until I was seventy my stenographers took my mind off my work too much."

Misunderstanding

Would-be Actress: "You've deceived me, Mr. Feelaham! You told me if I would put myself in your hands you would make me a star."

Director: "I did not—I said if you followed my directions you'd be made."

Wanted: New Office Boy

"There's a boy called John Simpson working here. Can I see him? I'm his grandfather."

"You've just missed him. He's gone to your funeral."

In a Taxi

"What are you stopping in the middle of the block for?"

"I thought I heard the young lady say stop."

"Well, she wasn't talking to you."

MORE

MILLER SAND PUMPS ARE USED IN CLEANING OUT WELLS THAN ALL OTHER SAND PUMPS MADE

The Reason IS BUILT INTO The MILLER

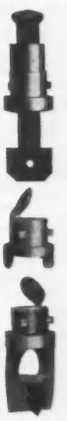
● THE RESULT

Is oil in your tanks in place of sand in your well. Get FULL *production from your wells,* CLEAN OUT *with a* MILLER.

The MILLER is made in diameters of 2½, 3, 3½, 4, 4¼, 5, 5½, 7 and 9 inches and lengths of 20, 25 and 30 feet. 5/32-inch wall thickness in REGULAR Type, ¼-inch wall tubes HEAVY Type Sand Pumps.

INTERCHANGEABLE BOTTOMS

To Meet Every Condition



● BAILER BOTTOM

With the Bailer Bottom installed the MILLER is quickly changed to a Bailer giving you a combination of either Bailer or a Sand Pump in one tool.

● SAND BOTTOM

Used when tools are run and when well is shot to quickly remove loose material.

● STAR BOTTOM

Used for cutting the sand loose.

● CHISEL BOTTOM

(In Pump)

With this bottom tightly packed sand can be easily broken in small pieces so it can be picked up in the pump.

Write for Descriptive Folder and Price List

See Page 1186 COMPOSITE CATALOG

PATENTED NO. 1370340 NO. 1523604 NO. 1787390 NO. 1862628 NO. 1866828 NO. 2053657

MILLER Sand Pump Co.

General Offices and Shop, Box 4516
OKLAHOMA CITY, OKLA., U. S. A.

Branch Shops and Offices:
SAPULPA, OKLA. and KILGORE, TEX.

FOR SALE BY SUPPLY STORES EVERYWHERE

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